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THE NORTHWESTERN MILLER

A Weekly Record of Current Milling Events, and Journal of the Flour and Grain Trades.

VOLUME 15. NUMBER 25. | MINNEAPOLIS, MINN., FRIDAY, JUNE 22, 1883. | $2.00 PER YEAR. 5 CTS. PER COPY

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REMEMBER

Our wish is to please you as nearas possible to your liking, so as to induce you to continue to favor us with your orders.

WILLFORD & NORTHWAY,

MILL BUILDERS AND FURNISHERS.

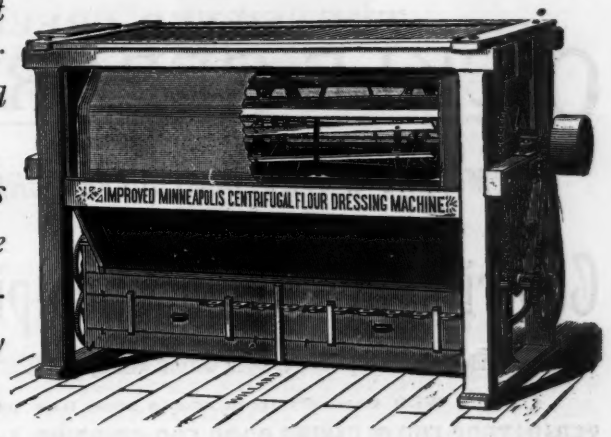
"The Deceiver lies at the Mercy of the Deceived."

PLANS

And estimates furnished for complete new Flour Mills, or for remodeling Stone Mills to the Roller Process. Agts for Allis-Gray roller mill.

Is an old Italian saying, pointed more particularly at deceivers of lovely women, and intriguers in political plots. However it holds just as good to-day in business, as it did in the old days of seething, passionate life.

We say to you that our Minneapolis Centrifugal Reel put to work on any of the various materials a centrifugal should properly handle, will make or save you very much money. TRY IT! If we deceive you, you have us at your mercy.



OLD SOCKS works it this way: He makes a Patent, and Bakers', and used to send the tailings of his reels to a pair smooth rolls, thence to a 20 ft. reel; dustings of this reel to Bakers', tailings to shorts. So he thought out a scheme to beat the Widow Miller, who was pushing him, bulling wheat, and he ordered one of Willford & Northway's number 2 Centrifugal Reels to put in place of his 20 footer. The scheme worked like a top. "Old Socks" already has $500.00 profits worked out in a two months' run, and if the cat don't "get thar" he will make it a thousand.

P. S. The Widow Miller is behind the mill (you can't see her) with a magnifying glass examining his shorts.

NONE OF OUR MACHINES WILL BE ALLOWED TO REMAIN IN USE UNLESS THEY ARE SATISFACTORY TO THE PURCHASER. In other words *their faithful performance and fine results are vouched for in every respect.* Too much time, labor and money (besides the wear and tear on our *brains, vast brains,*) have been expended on their development to allow any one of them to occupy a position where it will not do its own advertising perfectly.

Our New Improved Detacher and Separator is finding great favor among millers, orders are coming in rapidly, and every machine warranted. It is particularly profitable on rounding up and dusting flattened middlings and cleaning germ tailings from smooth rolls, and bran from last reduction. It thoroughly disintegrates the flour and middlings from germ, shorts and bran, makes a nice separation and renders fit for bakers' or straight flour the material that an ordinary reel cannot handle to any advantage. It is much cheaper than a centrifugal.

We Offer to the Millers of the Country our famous "GOLD RIBBON" brand of

Millers or millwrights changing mills over to the roller system, write us about our silk, for prices, etc. It will pay.

BODMER BOLTING CLOTH

Millers who know the value of exact count in Bolting Cloth will do well to correspond with us.

MANUFACTURED AND IMPORTED EXPRESSLY FOR OUR TRADE.

Our inspector rigidly requires the *best silk thread, great strength, full, square count, and evenness of mesh,* as we are well aware it is the only way to gain and keep the lead. The largest and best millers of the country are using our Gold Ribbon Bodmer Cloth and claim they can depend on its count when the best of other brands fail. Cloths made up with best silk twist and ticking, for 30 cents lineal foot of reel, and every cloth sent on its merits. Correspondence solicited, prices and discounts on application.

To be continued in our next.

WILLFORD & NORTHWAY, Minneapolis, Minn.

THE

STANDARD CENTRIFUGAL REEL!

THE LATEST AND BEST.

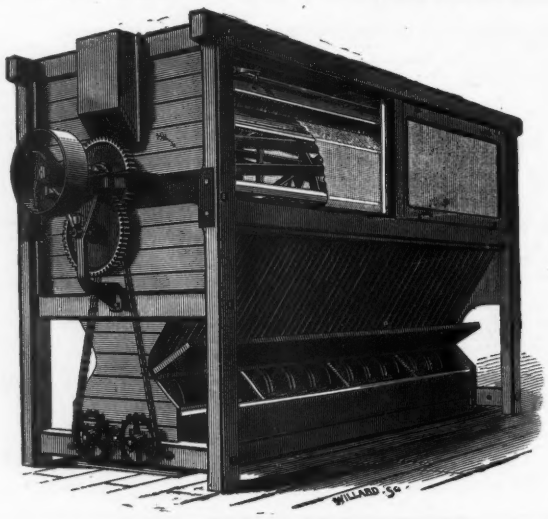
WE CLAIM

Greater capacity than any other reel of the same size.

The lightest running and easiest handled.

The best workmanship and the greatest durability.

More service from each square foot of cloth, and less wear of the cloth than any other reel whatever.



IT HAS

A 10 sided reel on which the cloth can be stretched tight and kept so, which can not be done on a round reel.

A brush attachment which sweeps each side of the reel perfectly every minute. No other polygonal reel has, or can have, this necessity. It may be used or not, as the material being treated may require.

This reel contains every feature which experience has shown to be necessary. It has the double conveyors side by side, and the material can be cut off every four inches if necessary. In case of a break in the silk this improvement allows the reel to be run until the miller has time to repair it. The brush can be regulated from the outside while the reel is in motion, to bear on the silk lightly, heavily, or not at all. The feed is automatic and air-tight, and there can be no center draft through the cylinder.

We are so confident of the correctness of our assertion that this is the best reel in the market that we will gladly ship it to any responsible party on thirty days' trial and let him be the judge as to its merits.

Office of the NORTHWESTERN MILL, Minneapolis, June 6, 1883.

Messrs. KIRK & FENDER, City.

Gentlemen:---In answering your inquiry as to how we like the Centrifugal bought of you, we have but to say that it gets "to the front" in better style than anything we have yet seen. It is giving us perfect and entire satisfaction. Yours respectfully, SIDLE, FLETCHER, HOLMES & CO.

FOR FURTHER PARTICULARS ADDRE

KIRK & FENDER, Minneapolis.

THE "SILVER CREEK"

COCKLE SEPARATOR,

MANUFACTURED BY

McNEAL & SPAULDING, SILVER CREEK, N. Y.

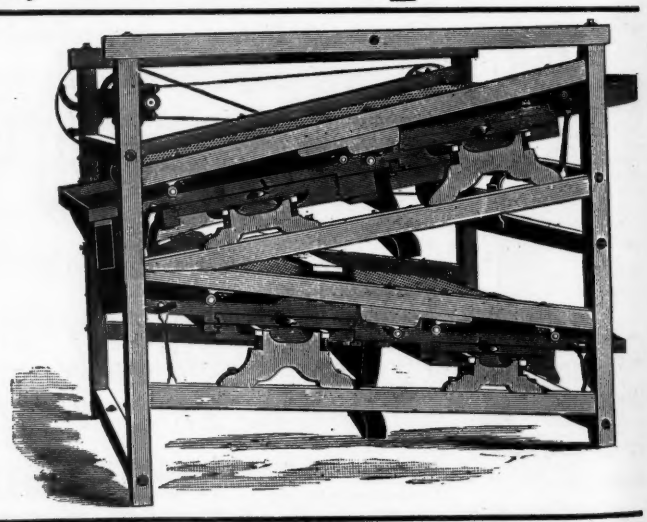
Also Manufacturers of

Centrifugal × Reels, × Scalping × Reels,

Smut Machines, Cockle Separators, Open Screen Milling Separators, Warehouse Separators,

With Capacity from 100 to 1000 Bus. per Hour.

SEPARATORS FOR CLEANING CORN FOR GRINDING, Any Capacity Required.



THE OLDEST MILLFURNISHING ESTABLISHMENT IN THE WEST

THE NORTH STAR IRON WORKS CO.

MINNEAPOLIS, MINNESOTA.

Machine Shop, Foundry, Boiler Shop

Manufacturers and Dealers in Shafting, Pulleys, Gearing, Etc.

BOLTING CLOTHS

which we import directly from the manufacturers in Switzerland, and which *we warrant equal to any brand in the market,* cloths made up ready for the Reels in the latest improved manner, using the best of Ticking and Silk Twist. Please write for prices discounts and samples of cloth before purchasing elsewhere.

MILL BUILDERS AND FURNISHERS Plans, Specifications and Estimates furnished upon application for complete new flour mills or for remodeling old mills into new process mills. Also manufacturers of **Bolting Chests, Centrifugal Reels and Dust Catchers.**

CHILLED IRON ROLLS, SMOOTH AND CORRUGATED, A SPECIALTY. Correspondence solicited. Price lists and discounts furnished on application. Write for catalogue and pattern lists.

NORTH STAR IRON WORKS O.

THE

BAKER GRADUAL REDUCTION DISKS

FROM AN IOWA MILL.

ST. ANSGAR, Iowa, Nov. 20, 1882.

SERGEANT MILL BUHR DRIVER CO., Minneapolis.

Dear Sir.—We have got everything running nicely. Your breaks are a complete success. They have entirely exceeded my expectations; they do twice as much work as the rolls and granulate better. The suction fan removes every particle of fluffy and greasy flour from 1st and 2d breaks without removing any that is good. It also removes the fuzz scoured in the bosom of the break and conveys it to the bran house. It is an appliance that cannot be used as successfully on a buhr or roll. I congratulate you on the perfection of your break, and take pleasure in reccommending it to the milling public for primary reductions especially, and cheerfully invite them to my mill to see it in operation.

Yours very truly D. F. McCARTHY.

FROM A MINNESOTA MILL.

GRACEVILLE, MINN., Nov. 25, 1882.

Messrs. SERGEANT MILL BUHR DRIVER CO.

Our mill has been in operation two months on your system, making about 150 barrels per day, with three breaks, for which three of your Gradual Reduction Disks are used. We are free to say that we are perfectly satisfied with the result. Our patent flour doughs up with the best Minneapolis brands and sells at the same price, and is in most cases preferred, while we have made a contract by which we sell all our bakers' for a year at the top market quotations. We have no hesitation in saying also that we do more work with less power and that the outfit cost us less by 50 per cent. than if we had used corrugated rolls. If you wish to show any one how the breaks work send them here, or tell them to write to us. The Baker disks are the best investment we ever made.

Very truly yours STRONG BROTHERS.

For circulars and other particulars addresss *THE SERGEANT MILL BUHR DRIVER CO., MINNEAPOLIS, MINN.*

The Liability of Dust Explosions in Mills

IS DONE AWAY WITH BY USING THE

PRINZ PAT. IMPROVED DUST COLLECTOR

IT IS AN ESTABLISHED SUCCESS.

The Back Draft Cleaning Mechanism, the only perfect device for keeping the cloth clean, exclusively used under the Prinz Patents. **Beware of Infringements.**

Prinz Patents,
Nos.
272,473
272,474

Prinz Pat. Improved Dust Catcher.

Prinz Pat. Improved Dust Collector with Fan Attachment.

CONSOLIDATED
Licensees Patents,
Nos.
63,325
125,518
149,434
171,973
207,585
211,033
228,023
231,376
235,197
239,755
248,984
250,813
251,120
251,121
258,875
258,876
258,878
259,872
259,873

One Thousand Machines in Successful Operation. Machines in steady operation for over two years. Selling at the rate of 200 a month. **FULLY GUARANTEED.** *Manufactured exclusively under the* **PRINZ PATENTS.** *Also licensed under all patents now or hereafter owned and controlled by the combined licensees, Geo. T. Smith Middlings Purifier Co. of Jackson, Mich., Kirk & Fender, Minneapolis, Minn., and Sam'l L. Bean of Washington, D. C.* **See Special Notice.** *License under all patents furnished purchasers. Send for circulars and testimonials, All correspondence promptly answered. You will save time, money and labor by using this machine.* **Every Miller Should Have It.** *Remember it is the* **BEST.**

MILWAUKEE DUST COLLECTOR MFG. CO., Milwaukee, Wisconsin, U. S. A.

Bain's International Telegraph Code.

Compiled by HON. GEORGE BAIN, President of the National Millers' Association.

This Code has been prepared by Mr. Bain, after a long experience in the Export trade. It is believed that it meets all the requirements of a perfect Cable Code, enabling an offer or acceptance for any quantity of flour or grain to be made in a single word, and reducing the liability of mistake to a minimum. In its preparation the greatest care has been used to exclude all words of similar appearance and sound. This latter feature will be found of especial value to all millers and flour receivers whose messages are re-transmitted by telephone, from telegraph offices or over wires connecting offices situated some distance apart.

In order to guard against mistakes in transmission at receiving or sending stations, the further precaution has been taken to have the Code TWICE REVISED BY EXPERIENCED TELEGRAPHERS, who have eliminated all words bearing the slightest relation to each other in telegraphic character. For these reasons and for many others which will be at once apparent upon an examination of the Code book, the publisher believes he is justified in claiming for it the distinction of being

The Most Perfect Cipher Code Yet Prepared

For the Use of the Flour and Grain Trade.

The spaces for brands of flour, etc. are left blank for the user to fill in as desired, thus preventing third parties making any use of information or copies of messages surreptitiously, obtained. Thus a the flour shippers in the largest city, though using the same code, are fully protected from the evils resulting from the unlawful disclosure or wrong delivery of messages, as in any but the right hands the message would be entirely unintelligible and useless.

The publisher solicits orders for sample copies, feeling confident that an examination of the Code will result in its general adoption.

C. M. PALMER, PUBLISHER,

The Northwestern Miller Office, MINNEAPOLIS, MINN., U. S. A

Bound in Russia leather in form suitable for pocket. PRICE TWO DOLLARS PER COPY.

NORTHWESTERN MILLER

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BY C. M. PALMER.
At 25 South 2d Street, MINNEAPOLIS, MINN.
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MINNEAPOLIS, FRIDAY, JUNE 22, 1883.

OUR Milwaukee correspondent, a gentleman of good judgment and much practical experience in milling, has something to say this week about the necessity for a combination among millers to limit production until the demand for consumption shows a material increase. The necessity for such a combination is plainly evident, and we have advocated it for the past two years, but in vain, as the leading spirits of the trade have almost unanimously pronounced it impossible. The coming convention will, however, afford representative millers a good opportunity to discuss the matter.

* * *

TELEGRAMS received by parties in this city state that on Tuesday, June 19, the Canadian Supreme Court decided that all the Dominion patents of the Consolidated Middlings Purifier Co. were valid. This is the result of an appeal from two adverse decisions, and shows the stubborn and determined nature of this "old man of the sea" who would fain ride the necks of all rival manufacturers.

* * *

To leave no stone unturned, no opportunity neglected; to gain its ends by a stubborn, strong, wily, and uncompromising warfare or secret compromise is the policy of the Consolidated Middlings Purifier Co. The fight which has been urged to the bitter end in Canada will doubtless be waged as mercilessly and stubbornly in the United States, and the NORTHWESTERN MILLER advises those interested to allow no feeling of false security to interfere with their preparations for defense. They may as well be prepared to grapple with this octopus when it makes the attack. Next week we shall publish the full report of the judgment rendered by the Canadian court.

* * *

THE pneumatic tube scheme for the conveyance of grain from Chicago to New York, has been revived, and we are promised full details in a month or thereabouts. Some of our readers may perhaps remember that we made merry over this apparently absurd plan two years ago, when it was first proposed. The world has gone ahead appreciably, even in that short interval, and it may be more nearly practicable to blow a constant stream of grain six or eight inches in diameter a thousand miles up hill and down, than it was then, but we still think it about a hundred years ahead of the times. Among the claims of the promoters of this scheme is one that "the grain will be much improved by its passage through the pipe line as it will pass over a patent dusting fan upon its arrival in New York." After ten or twelve hours (the estimated time of the passage) rolling and tumbling through an iron pipe at rifle ball velocity, it might be a good idea to run the stuff into barrels and call it "whole wheat" or "attrition" flour.

* * *

MESSRS. John Dunn & Co., of Adelaide, South Australia, have sent us a sample of the wheat grown in that colony, which for size, plumpness, and freedom from dirt of all kinds we have never seen equaled. They say: "Unfortunately our harvest this season was a comparative failure as far as yield was concerned, but the quality of our wheat still maintains its world wide reputation." If this wheat had the strength of Dakota hard spring it would be to all other samples what Jumbo is to the race of elephants.

* * *

BY the following extract from Messrs. Dunn's circular for April 27th it will be seen that milling in South Australia is very dull at present:

"Our market continues quiet but firm at our previous quotations of 5s. 6d. per bushel for wheat and £12 10s. per ton for best brands of flour. The publication of the government returns of our agricultural statistics, showing the total production of wheat to be about 20,000 tons less than last year has had no appreciable effect upon prices, but holders of grain continue very firm in their demands, anticipating that the remainder of our available surplus will not suffice to meet the ordinary demands of our regular customers. The area under wheat is shown as 1,746,864 acres, producing 7,356,117 bushels, equal to an average of 4 bushels and 13 lbs per acre, which is the smallest average ever reaped in this colony. After deducting for seed and home consumption, only 100,000 tons remains for export, of which 48,483 tons have already been shipped. No wonder that our agriculturists complain that wheat growing does not pay, and unless we have a return of more prosperous seasons the same remarks will soon be applicable to the milling trade. Our own mills are capable of grinding more than the half of this year's surplus, and those of the Adelaide Milling Co. the remainder, consequently great difficulty will be found in obtaining continued work for the numerous smaller mills that are scattered throughout the colony, and it is evident that many of them must remain idle for more than half the year."

* * *

THERE are many evils attending the milling business, which should be discussed at the coming convention and some practical steps taken to remedy them, not the least of which is the present patent law and the evils arising therefrom. Thousands of patents have been obtained within the past decade in the various mechanical devices used for the manufacture of flour, and it would not be surprising that in such a large number, there must be infringements. Besides the laxity in the patent office itself there are a great many specifications so loosely drawn that they are almost useless, and when there is an infringement an endless and costly lawsuit follows, in which over-wise judges figure as experts in business foreign to their education and with which they cannot be expected to be familiar. There should be thoroughness in the examination of claims, and none but competent men employed in the various departments in the patent office. Men who are familiar with machinery and who are able to know an infringement when they see it, and no patent should be granted except where priority and usefulness are conclusively proven, so as to avoid infringement as far as possible. Of course there is scarcely a machine contrived at present but some part of it is patented, and hence the necessity for thoroughness in the examination of claims. The committee appointed by the national association for this purpose should give a good deal of attention to this subject, not only by suggesting remedies, but seeing, as far as practicable, that they are carried out, and thus endeavor to relieve the miller and manufacturer of such litigation as they have been annoyed with for years past.

* * *

THE transportation question is also of vital importance to millers, but perhaps the leading topics will be the suits won, and to be won in labor saving contrivances as well as in milling processes. The subject of barrels and sacks will doubtless undergo some discussion, and as usual the matter will be allowed to drop until the next convention is called. Pulp barrels have been recommended, but their practical application has been thus far so slight as to amount to nothing. No prejudice should be allowed to interfere in the adoption of any improvements calculated to decrease the cost of milling operations or to facilitate handling the raw material or products. The subject of grain gambling should receive more than an ordinary amount of attention, as of late the wheat combinations have been conducted with such recklessness that they have seriously affected the milling trade during the season just past, and may be a drawback in the coming fall if some means is not adopted to check them. In doing this there must be a steady watch kept on the market, both here and elsewhere. The extent of the remaining surplus as well as the condition of the crops in the ground are important factors in prices both here and in Europe and should be studied. Of course the usual resolution against option dealing will be adopted and equally, of course the virtuous millers will improve the opportunity to go on change and take their little "flyers" as usual.

* * *

WE shall doubtless hear something of the bran compressing machine at the convention, when samples will be shown, we trust in great number. Messrs. Sawyer, Wallace & Co., of New York, forward to us the following letter from one of their British customers, showing the requirements of the trade: "As compressed bran and middlings will be the thing of the future, we beg leave to give you our opinion about it in regard to future transactions. After a careful examination of different samples of winter wheat bran and middlings, we have come to the conclusion that a pressure giving the cubic foot of compressed bran a weight of about fifty pounds, would make it a complete success. On the whole, American bran and middlings will answer the purpose, if they can be loosened again without artificial means. As the most suitable export packages we have to recommend jute sacks of 224 pounds and 112 pounds, both kinds at the same time to suit the various requirements of the trade. The solid nature of the packages occupying small space and being easily handled will procure a considerable saving in transportation and storage charges, and will have of necessity the preference. The American winter wheat bran of the roller mill being broad in the leaf and of good color, is fully equal if not superior to any article manufactured in Great Britain or on the continent."

* * *

ELSEWHERE will be found the diagnosis of an interesting case of unconscious cerebration from which the *Milling World* is suffering. We hope to effect a complete cure in time by means of light and ventilation—simple but effective remedies for such attacks.

* * *

THE Western Manufacturers' Mutual Insurance Co. has sent out to a very large number of mills a very good sort of an advertising card. It is a quarter sheet of colored card board for pasting up in the mill over a water cask, and bears the following: "Notice! The apparatus belonging to this water cask is two buckets, one bar, one axe, one saw. These are for use in case of fire only, and must not be removed for any other purpose under any circumstances whatever. Replace apparatus after using. It is the duty of —— —— to see that the cask is kept constantly full and covered, and that the apparatus is in place. [Use plenty of salt in the water and stir occasionally to keep well dissolved.]" With three or four such casks on every floor, so located as to render them easy of access from any part of it, the danger from fire would be materially lessened. The great fault of this device is that the buckets and tools are carried off and put to other uses and the water suffered to run low in the barrels. The same objection applies to all other fire extinguishing devices, however, and the only way to overcome it is by constant vigilance.

* * *

IN connection with the cards above mentioned, was a circular showing an improved form of construction for elevator heads; that is with an inclined strut board under the pulley. This pitches at a considerable angle toward the discharge side and is designed to permit dust, grain, and other stuff lodging on the strut board to slide off into the down leg of the elevator. If this is not done there is danger of the packing of the material under the pulley and its ignition by friction. The author of the circular is perfectly correct in saying that no one has a patent on this improvement and that anyone can use it. At least he is correct as to the latter part of his statement. No one can tell what there may be a patent on. At any rate if it is patented the claim cannot be very good as the same device is plainly described and illustrated in the first edition of Oliver Evans' "Millwright and Miller" published in Philadelphia in 1795.

* * *

THE large number of mill fires occurring recently will doubtless call the attention of the insurance companies to this class of risks. They have not been slow or modest in advancing the rates on every pretext, and now that they will have to pay a number of losses, very small, however, in comparison with the great number of expensive policies in force on this class of risks, we shall doubtless soon hear of meetings and resolutions calculated to strike terror to the milling heart. It may be consoling to know that the underwriters do not devote their entire attention to the milling trade. At a recent meeting of the Chicago board of underwriters it was resolved to make an attack on high buildings in that city, and the following scale of extra rates was adopted: (Eighty-five feet from sidewalk to cornice being taken as a basis); 85 to 95 feet, 1 per cent; 95 to 105 feet, 1.25 per cent; 105 to 115 feet, 1.60 per cent; 115 to 125 feet, 2.05 per cent; 125 to 135 feet, 2.60 per cent; 135 to 145 feet, 2.25 per cent; 145 to 155 feet, 4 per cent.

* * *

SOME of our virtuous lay contemporaries are badly torn up by the failure of the lard ring in Chicago. We never see any particular fuss made by them over the breaking of a faro bank or the failure of a lottery. Yet one event is about as important as either of the others.

* * *

THE editor of the *Roller Mill* is a very astute individual, but he seems to have permitted his feelings to run away with his judgment in the matter of that old cider mill patent which he has resurrected. When he can find the words "chilled iron" in the claims of his patent, it will be time to talk about its anticipating the Mechwart patent. We hate to be under the necessity of teaching so wise a child primer truths, but we are obliged to suggest that in order to anticipate a patent *all* its claims must be anticipated. The patent published by us Oct. 13, 1882, dated June 26, 1839, is more pertinent to the case than that over which our Buffalo friend goes wild. When the Ganz patents come before the milling public in earnest, we have much better news for millers than any that the *Roller Mill* has yet published.

LOCAL & PERSONAL.

This week there are fifteen or sixteen mills in operation at from one-third to three-quarters of their full capacity, and the production will be increased over a week ago. Several of the mills are running only day-time, which accounts for the production seeming so light considering the number of mills at work. The production for the week will average about 12,300 barrels per day, against 10,500 last week. The situation with the flour trade is claimed to be less favorable by millers, the market being dull and lifeless to a degree beyond last week. It is quite evident that our millers yet hold to the belief that good milling wheat will be scarce before the season is over, and that they are husbanding their stocks, looking for the time to come when they can grind it at a good profit. Wheat shows a decline in the local market of from 1 to 1½ cents on the week, and the Millers' Association has dropped its prices 2 cents. Our receipts of wheat have been larger the past week, being about ten per cent greater than the amount ground by the mills. The shipments of flour have hardly equaled the amount turned out, and considerable local stocks are no doubt accumulating. The wheat stored in Minneapolis elevators including the transfer elevator, on June 19, was 1,090,000 bus. There were about 470,000 bus. in the mills, making the total amount of wheat in store in the city, 1,560,000 bus., against 1,490,000 bus. last week. The wheat stored at St. Paul is about 254,000 bus. The wheat in store in Duluth elevators is 681,042.

The following were the receipts and shipments at and from this point for the week ending June 20, and corresponding time last year:

		Received.	Shipped.
Wheat, bus.—	1883	317,000	10,000
" "	1882	367,000	42,500
Flour, bbls.—	1883	1,235	55,355
" "	1882	1,250	32,223
	LAST WEEK.		
Wheat, bus.		277,500	22,500
Flour, bbls.		1,175	56,665

* * *

W. D. Gray is in town.

The Pettit mill starts up Monday.

The Union mill is running day-time.

Mr. C. A. Pillsbury and family have gone east.

The Galaxy mill is putting in its new water wheel.

Matt Lehigh, of the Standard mill, has gone to Fergus Falls to take charge of a mill.

Jos. Ryan, machine tender of the Anchor mill, was married in the city Tuesday.

The Columbia mill started up Tuesday, and the Crown Roller was to do likewise Wednesday.

O. W. Ogilvie, the Winnipeg miller, visited the dual cities of St. Paul and Minneapolis last week.

Second Miller Snyder, of the Pillsbury A mill, has been out to lake Minnetonka with his family, recuperating.

Time-keeper Flanders, of the Pillsbury A mill, has reached the dignity of being a father, the new-comer being a boy.

Wm. Doyle, a machine tender of the Pillsbury A, had one of his fingers painfully squeezed Tuesday in a pair of gears.

Crocker, Pell & Boardman are furnishing the iron work for two flour mills, one in Colorado and one in southern Dakota.

Miller Hoovermale, of the Washburn A mill, has gone to a place in Nebraska to work until the milling business picks up in September.

Dennis O'Brien is the latest man in the Standard mill to become a benedict, he and Miss Josie Galagher having been married on the 12th inst.

Mr. Osborne, of Jas. Osborne & Co., produce brokers at New York, London, and Glasgow, is traveling in this section looking after the interests of his firm.

Henry Ebner's mill, at Dayton, Minn., was burned on the 14th inst. Loss, $25,000; insurance $10,000. This mill was recently overhauled, and Mr. Welch, a city miller, had charge of it for a time.

A. Friend, of Garden City, Minn., has ordered through Willford & Northway, 4 double Allis-Gray roller mills. Shaw & Ehlers, of Litchfield, Minn., have also placed their order for 3 No. 1 Smith purifiers with the same firm.

The Olmsted Electric Light and Power Co. will establish a plant in the works of the Pray Mfg. Co., and in a short time be prepared to cater to the needs of the general public in electric lighting. The lamps are being put in for lighting the shops of the Pray Co.

Willford & Northway's orders for centrifugal reels, continue to come in. The past week the following have been recorded: Ira McDaniels, Ohio, two No. 2; E. W. Viault, Princeton, Minn., one No. 2; Jacob Walter, Easton, Pa., one No. 2; and Iowa firms, four No. 2.

There was an insurance of $56,000 on the Harmon, Holmes & Co. milling property burned at Sauk Center last week. Of the insurance, $46,000 was on the mill and the engine and boilers. The balance was on the elevator. We hear that there is no prospect of the firm's rebuilding.

Following were the wheat receipts by grade at this point for the week ending June 19.

	Cars.		Cars.
No. 1 hard	42	No. 3 regular	262
No. 2 hard	47	Rejected	14
No. 1 regular	86	Condemned	14
No. 2 regular	108		
Total	621		

A. Schwarzwaelder, the German who has been in the city for some time introducing a grain cleaning apparatus, is reported to have suddenly left for parts unknown, leaving his creditors in bad shape. Hashow, Maish & Davis are the most heavily involved, Schwarzwaelder owing them about $1,500.

A party of seven, who went out on the millers' excursion, headed by David Williams and Joe Abrams, of the Northwestern mill, remained over until Sunday for fishing. They had extraordinary good luck, capturing about 140 pounds of the finny tribe. The largest fish caught was a pickerel, weighing fully seven pounds, being hooked by one of Mr. Williams' sons.

F. H. Peavy & Co. have, owing to the lateness in the season at which the negotiations for a site were concluded, decided not to build an elevator in the city this year, but that they will erect one next season is not improbable. If the same circumstances then exist that now do, the capacity would probably range between 125,000 and 150,000 bushels. It would be built more for the firm's own special business than anything else.

Messrs. Shuler & Co. will build a 100 barrel roller mill at Fullerton, Neb., for Slaughter & Lindsley. It will be an exclusively roller mill, having ten sets of Stevens rolls. Besides, it will have 4 Smith purifiers, with Milwaukee dust collectors, and a line of Barnard & Leas cleaning machinery. The mill will be driven by a Johnsville-Bodiene wheel, used under an 8-foot head.

A. F. Shuler, who superintended the millwright work on a 90 barrel mill at Wahpeton, Dak., for the Wahpeton Mill and Elevator Co., has returned, having completed the job and witnessed the mill start off in good shape. The mill has a Rounds sectional roller mill, 3 pairs of Stevens rolls, a run of stone, and is operated by an engine built by the Novelty Iron Works, of Dubuque, Ia.

Mr. L. Christian of the Crown Roller mill, seems to have taken the blue ribbon as a fisherman. While out on lake Minnetonka the other day with Mrs. Christian and little daughter, a pickerel was hooked which took the whole family to get into the boat. It weighed 16 pounds, and is the largest we have yet heard of being taken this season. Let all the millers go and do likewise—if they can.

Some of our dailies have become impressed very suddenly that the Minneapolis Millers' Association has about outlived its usefulness, and that there will be a dissolution of the organization at the close of the crop year. We have talked with some of the members, and they say the association was never stronger or more harmonious, and ridicule the idea, declaring the report to be utterly without foundation.

F. W. Bullard, the bag man, has made an assignment to O. P. Carter. While the assignee has made no report as to how bad the failure is, Mr. Bullard thinks that his assets will about equal his liabilities, and that some arrangement will be made whereby he will be able to continue in the bag business. He attributes his misfortune to a very light trade last winter, the idleness of the mills here and in the country cutting down the demand for bags.

George Walker, formerly one of the stone dressers in the Pillsbury A mill, but who has for some time been in charge of a mill at Crook City, Dak., is in the city on a visit. He is well pleased with the Black Hills country, and will go back the latter part of July. The owners of the mill at Crook City and the one at Spearfish have consolidated, and are removing the former mill to Spearfish, where there is good water power, while at Crook City steam power was used. The two mills, one being on the stone and the other on the roller system, will be put together, making one much larger and more complete institution.

Jas. Pye has just closed a contract for the Pray Mfg. Co., to build a 200 barrel roller mill at Crookston, Minn. The Crookston Roller Mill Co., composed of B. Sampson, W. F. Wilchen and Julius Bjornstäd, are the proprietors, and they will not allow money considerations to stand in the way of having the best mill that can be built. The mill building will be 40x60 feet on the ground, three stories and basement high, and a frame structure. The machinery will include Livingston rolls, Smith purifiers, Pye centrifugal reels, Eureka packers, and a complete line of cleaning machinery. The motive power will be water, an 84 inch new American turbine driving the mill under a seven foot head. The power is furnished by the Red Lake river, and is a reliable one. The millwright work will be commenced about the middle of July, the mill to be completed by Nov. 1, or sooner.

The mill to be built by Daniel Crosby, brother of Mr. Jno. Crosby of this city, at Topeka, Kas., will at first be given a capacity of 300 barrels, but the building will be made of a sufficient size to admit of enlargement in the future to 500 barrels. Mr. Wm. de la Barre has the planning of the mill under his supervision, assisted by Henry Crossen. The mill house will be 58x58 feet on the ground, five stories high including basement, and constructed of stone. The machinery will substantially consist of 11 double sets of rolls, 3 runs of stone, 8 double Smith purifiers, 26 reels of different kinds, Barnard & Leas receiving and mill separators, brush and bran duster. The corrugated rolls will be of the Stout, Mills & Temple make, and the smooth the new Daverio mill made by the Barnard & Leas Mfg. Co., and six breaks will be made. The motive power will be steam, a 20x48 Wetherill-Corliss engine being used. Adjoining the mill will be built an elevator, 42x58 feet, having a storage capacity of 50,000 bushels. The North Star Iron Works furnish the iron work, while the special machinery comes direct from the manufacturers, Mr. de la Barre having the work under his supervision. The mill will be completed in September, that it may be ready for the new crop.

THE MILLERS' EXCURSION.

The third annual excursion and picnic of Minneapolis millers, held under the auspices of the head millers, occurred Saturday, and, favored with an exceptionally fine day, dropped in between two bad ones, it was a great success. A deep interest being taken in the event, all the mills were shut down, and the party numbered double what it did last year. The motor line was engaged for carrying the excursion to Excelsior, and as early as 6:30 P. M. people began to congregate about the starting point. By 7:30, the hour of starting, sixteen coaches were well filled, and when the four trains moved off to the music of Danz's band, the party showed itself to be in excellent spirits. No event of note transpired in the run to the lake, but the bracing breeze and fine scenery along the route made the ride a delightful one. Arriving at Excelsior about 9:30, it was but a few moments before the palatial steamer Belle of Minnetonka came alongside and received its cargo of human freight, then steaming off to lower lake. In the meantime dancing had begun on the boat, and was kept up during the trip. A tour was made of the lower and upper lake, no stop, however, being made until Chapman's, at the head, was reached, about 11:30. The ride on the lake was one of the pleasantest features of the day. The sun shone brightly—was even hot, but the atmosphere was tempered to just the right degree by a steady breeze. Then, too, the foliage on the banks of the lake was in its handsomest stage, being developed by the recent rains to its greatest loveliness. As soon as Chapman's was reached, the excursionists disembarked and distributed themselves in groups about the grounds, and by 12 o'clock nearly all were satisfying sharp appetites before a picnic dinner spread on the grass. By 1 o'clock lunch was over, and picnic sports and other amusements were introduced. The band played several selections on the grounds, and then returned to the place for dancing, which was kept up until the return. Many went boating or fishing, while the most sport, perhaps, was had at foot-ball. The latter game was taken part in with much spirit by a large number, and was the centre of attraction. Not a few retired with lame or damaged shins, or from sheer exhaustion, but their places would be at once filled by others eager for the fray. At 4:00 P. M. the party was called on board the steamer and in half an hour more the excursion was on its way back to Minneapolis. The return trip on the lake was equally as delightful as in the morning, but at Excelsior some delay was occasioned with the motor, and the party did not all get into the city until after 8 o'clock. On the whole the excursion was a decided success, and reflects credit on the managers. There were nearly a thousand people in attendance, about double the number last year, and for this reason it was somewhat crowded. Captain P. S. Davidson, owner of the Belle of Minnetonka, was himself on board the boat all day to look after the comfort of the millers, and it is to the courtesies of the management of the steamer and its fine handling, that the millers owe the chief pleasure of the day.

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Nearly all the milling firms in the city gave their employes their time Saturday, or a ticket to the excursion.

The excursion was largely attended by the rank and file of the mills, and it was a party that the milling fraternity might well be proud of.

The proprietor of the Chapman house showed himself to be a man utterly unreliable and without enterprise, and will probably not get another millers' excursion.

Head Miller Williams, of the Northwestern mill, was out with his new hat—an elegant silk plug—excursion day, and wore it with a dignity of mien in keeping with the occasion. It is very becoming to Dave, and many were the compliments.

The *Pioneer Press* man greatly distinguished himself in the game of foot-ball on Saturday, and was the centre of attraction throughout. He could kick at the ball the oftenest without hitting it, at the same time landing on his back, of anyone on the grounds.

The game of base ball between the employees of the Washburn and Pilsbury mills was not played excursion day on account of the inability to procure suitable grounds. However, the running forces of the Washburn mills challenge the boys of the Pillsbury mills to meet them on the diamond field at some date in the near future, and there is a fair prospect that a game will be arranged.

Among those attending the excursion were Mayor Ames, Ald. Glenn, E. V. White, W. H. Dunwoody, Jas. Pye, Mr. Northway, Mr. Foss of Jordan, C. M. Palmer, J. D. Nolan, F. J. Clark, Head Millers Walsh, McDaniels, Dodge, Lockerbie, J. F. Stephens, Bidwell, Eb. Stephens, Williams, Kroft, Popplestone, Stahler, Carlton, Robinson, McCartin, Clark, Scott, Tamm, Helfrich, Zimmerman, Menor, and Al. Vincent of St. Paul.

The head millers held a meeting at this office Tuesday evening to close up the excursion business, but owing to the absence of a few, another meeting will be held here Saturday night. The ticket sales will amount to about $900, and there will be something of a surplus over expenses, but the head millers do not care for there being very much, as all they aimed to do was to furnish the operatives of the mills a day of recreation at a minimum cost, and come out without taxing their own purses too heavily. The first year, when the excursion was free, they were forced to "put up" quite handsomely.

It may interest our Minneapolis readers to know how the first millers' excursion originated. One day in August, probably the 24th, 1881, our Mr. Clark was in the Dakota mill, and looking across the street, noticed head millers Walsh, Helfrich and Deobold earnestly engaged in conversation at the corner of the Cataract mill. Crossing over, he inquired the nature of the scheme evidently under discussion. They explained that a miller's excursion had been proposed. The matter of having an excursion was then more fully canvassed and discussed, and the head millers being found, by further investigation, to pretty generally favor the enterprise, a meeting was held at this office on the evening of Aug. 29, 1881, and an excursion on Sept. 3d resulted.

Cooper's Chips.

The Hennepin Co's. shops started up Thursday, and will run steadily for some time to come.

The Co-Operative Co's. shops were shut down two days this week, when running making 1200 to 1300 barrels per day.

The North Star Co's. shops have been running steadily for three months, and turn out from 8,500 to 9,000 barrels per week.

The prices of barrels are from 46 to 49 cents. The shops are now making only ten hoop barrels for flour, the new order of things going into effect, as provided by the millers, June 1.

Hall & Dann's shops are not running as heavily as last week, about twenty-five men being laid off, and the output of barrels reduced to between 2,200 and 2,500 barrels per day. This company will not this year finish the addition to their shops at the corner of First st. and Third ave., commenced last season, although they thought strongly a short time ago, of immediately going on with it. The firm reports business this year better than last, but prices are not quite as satisfactory. Poles and hoops have been high.

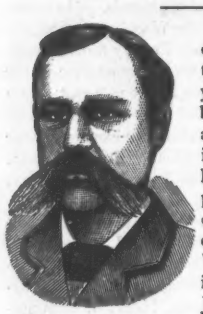
Charles G. Bennet, of Cincinnati, who was charged with using the mails for the purpose of defrauding, has been arrested at Chicago and bound over to the grand jury in the sum of $3,000. This is one of the cases of the five bogus commission firms of Chicago, who, it will be recalled, were denied the use of the mails last February, and whose members found it convenient to leave the city to escape prosecution.

Following were the weekly imports into the United Kingdom on the dates named:

Articles.	Week ending June 9, 1883.	Week ending June 10, 1882.
Flour, bbls.	150,000@155,000	170,000@175,000
Wheat, qrs.	415,000@420,000	350,000@355,000
Corn, qrs.	165,000@170,000	135,000@140,000

An Oregon exchange says millers are offering 70 cents per bushel for wheat at Walla Walla, and are eager buyers at that figure. It is thought that there is 50,000 bushels in the hands of the farmers.

Punished for Burning a Mill.



The cut at the head of this column shows the features of a young man who, with brilliant prospects and apparently every incentive to do right has chosen the other path and gone decidedly wrong. A correspondent at Winfield, Kas., writing under date of June 9th, says:

William H. Colgate, son of Jas. B. Colgate, the wealthy banker of 47 Wall St., New York, was to-day found guilty of arson for burning the books and chattels of Bliss & Wood, millers of this place, and sentenced by Judge Torrence, of the district court to three years' hard labor in the penitentiary. The trial has been a long, tedious one, lasting nearly three weeks. The facts of the case are substantially as follows:

On the 13th of last August, Bliss & Wood's mill at this place was burned, entailing a loss of over $50,000, on which there was only $10,000 insurance. Suspicion pointed directly towards Colgate, he being book keeper for Bliss & Wood at the time. Detectives were put after him, and on the 30th of August he confessed to burning the books, and gave as his reason for burning them that there were some errors in them, which, if discovered, would cost him his position and disgrace him for life. He said he tore the books into pieces, and after pouring kerosene oil over and setting fire to them, locked the office door and left. He also left the safe door standing open and scattered other papers and books over the floor so convey the idea, he said, that the office had been robbed. He was immediately arrested for burning the mill, and in default of $5,000 bail, was sent to jail. After being imprisoned he said that if he had known that he was going to be treated in that way, he would have made it a d——n sight hotter for his prosecutors than he had already done.

He entreated his father to help him out of his trouble by righting the wrongs he had done by paying Bliss & Wood for their loss; but the old man gave a deaf ear to all his pleadings, saying he was not his son; that by committing this crime he had made himself a criminal of the deepest dye, and that he ought to go to penitentiary for life.

Colgate was tried at the last October term of the district court, but from some cause was found not guilty. He was immediately re-arrested for burning the books and chattels of Bliss & Wood, with results as above. He took the sentence very coolly, saying that his greatest sorrow was in loosing his mustache. It is said Colgate's trouble all arose from his living beyond his means, trying to support an extravagant wife.

The Bag Business.

The vast bulk of the grain exported in bags through eastern ports is carried in sacks that are borrowed on this side and returned in bales to make the journey over and over again under similar conditions. The characteristic restlessness of the nation extends even to its grain bags. It inhabits only those of American make; in foreign bags the disposition to promiscuous travel is restricted by the 40 per cent duty exacted by a discriminating government. Yet, in keeping with the principle of minority representation there are conservative American grain bags that travel on their dignity and for what they are worth. Most of them hail from the Pacific slope. Grain sent east from California to cross the Atlantic comes sacked from the fields, because of the lack of canal transportation in the golden state. The bags in which it is carried seldom make the return trip, the reason being they are made to hold a hundred-pound weight, or less than two bushels, while the standard eastern grain bag holds three bushels. Then there are the aristocratic bags that carry grain to Portugal, the Canary Islands, and the West Indies. These are not woven of jute, as their coarser kindred, but of American cotton, and having brought bread to their buyers are made to clothe them too. They are worn out as shirts by the workingmen of these nations. The grain bags sent to Cuba come back filled with sugar and an occasional clandestine box of cigars, and are henceforth unfit to be "loaned."

The stout burlap grain-bag of the trade that is turned out of New York manufactories at an average cost of 10 cents—$1 being a woman's pay for a day's work of 850 bags—is loaned to grain shippers at a rate of pay for a single trip across the ocean reaching nearly one-half its value. It will last for from four to a dozen round trips, thus earning its own cost several times over. Yet the risk and expense of handling is so great to ship owners that to borrow even at this enormous interest pays better than to buy. All grain laden vessels leaving New York carry a portion of their cargo in bags for the safety of the ship. English laws require this portion to be at least one-third of the whole. Grain in bulk shifts easily, and were a vessel to be thrown on its beam ends, would swamp it. In case of need bags, too, can be more easily thrown overboard. Hence the rate of insurance is affected by the proportion of the cargo carried in bags. In brisk seasons, therefore, enormous numbers of bags are afloat; last year more than 10,000,000. In one brisk season a single firm loaned 3,500,000 bags. Upon their arrival on the other side they are collected by agents of the owners, pressed into huge bales, and returned by the next steamer with a certificate from the American consul that they are truly native bags. Thus recommended, they pass through the custom house duty free, if the figures agree with the clearance papers of the date of their departure, and are here overhauled, patched where the rats have gnawed, and made ready for their next tour of duty. Usually they havn't long to wait.—*N. Y. World.*

Growth of the Grain Trade.

To trace the rise and progress of the grain trade of the United States, would be almost to complete a record of the development of this entire continent, as it has been the chief agency in opening up the largest part of our settled territory. First in the march of civilization came the farmer, after him the merchant, then came commerce and manufactures. The grain merchant is always the pioneer of commerce, and until he is established few commercial ventures find a foot hold. The development of our agricultural resources, and the increasing demands of Europe for foreign breadstuffs seem to have continued at a very regular pace, and it is to be noticed that as the production of the United States increased, new and more extensive markets have been found. The extension of manufacturing in Great Britain has been gradually rendering that country more and more dependent on other nations for the breadstuffs with which to feed her people, and she now finds herself reduced from a grain exporting to a grain importing country. But "it is an ill wind that blows no good," for without this European demand for the grain produced in the United States, the same inducement for opening up the fertile land in these western states would not have existed. The steady and increasing demand for American breadstuffs in Europe, greatly stimulated the production, made the unbroken yet wild and fertile wilderness and prairie attractive to the agriculturist of all countries, and created a commerce for which history has few parallels. At the same time it has enriched our country almost beyond calculation, and given us an enterprising population drawn from the industrial classes of every nationality, and has endowed millions with wealth and freedom.

The scant product of the Atlantic states when we commenced was gradually pushed up the Hudson river as far as navigation would permit, and then the Erie canal brought it westward to the lakes, and it was at the completion of this work that the history of the grain trade commences, and after awhile our inland seas became the highway of a commerce that beats any thing the world has ever seen. Then the Mississippi became the great water way of a grain trade that has eclipsed anything that ever preceded it in the annals of the world. The cities and towns on its banks are the marts from which the people of Europe draw their supplies of grain and flour. The grain trade is now the leading interest in the country, and exerts an influence on the people that promotes happiness, prosperity, and independence.

The secretary of state of Michigan says, under date of June 15, that the condition of wheat in the southern four tiers of counties of that state, and in the counties north of the southern four tiers is 85 per cent the comparison being with conditions one year ago. These figures, due allowance given to the amount winter-killed, indicate a crop of about 22,000,000 bushels or nearly 10,000,000 bushels less than in 1882. Corn as compared with last year, shows an acreage planted of 90 per cent; Oats 98 per cent planted and condition 91. Owing to the wet weather no inconsiderable amount of corn remained to be planted on June 1, hence it is probable that future reports will materially change the figures for this crop. It will be remembered that last year a great deal of corn was planted in Michigan after June 1.

BUSINESS NOTICES.

A LONG FELT WANT SUPPLIED.

The La Crosse Smooth Chilled Iron Roller Mill—price $125.00. These mills will crush tailings or size middlings for a 100 barrel mill. For particulars apply to JOHN JAMES & CO., La Crosse, Wis.

CLUB LIST.

NORTHWESTERN MILLER with		
American Miller	1 year	$2.50
London Miller	"	3.00
Scientific American	"	4.50
American Agriculturist	"	3.00
Harper's Magazine	"	5.00
Century (Scribner's) Magazine	"	5.30
Boston Journal of Commerce	"	4.25
Abernathy's Hints on Millbuilding	"	4.00
Emerson's Book	"	2.50

Other publications, not on above list, can be furnished in connection with the NORTHWESTERN MILLER, at a corresponding reduction on the price charged for them separately.

STEVENS ROLLS RE-CORRUGATED.

Millers in the west and northwest, who may have Stevens rolls that require re-dressing or re-corrugating, can have such work promptly and expeditiously performed by MR. ROBT. JAMISON, NEENAH, WIS., to whom we have furnished an outfit of specially constructed machinery for this purpose.

THE JNO. T. NOYE MFG. CO.,
BUFFALO, N. Y.

ALWAYS AHEAD.

The Atlas engine works have brought out a new automatic cut-off engine of remarkable simplicity and at a very low price. There is nothing equal to it in the market for any money. The sizes run from 20 to 100 horse power, and all who intend putting in new engines for mills this season should be sure to see this before buying. We hope to have a sample soon and are ready to receive orders now.

SHATTO & DENNIS,
207 Washington Ave. North,
Minneapolis.

MILLERS' NATIONAL ASSOCIATION.

SECRETARY'S OFFICE,
MILWAUKEE, Wis., May 5, 1883.

Mr. Julius Schlesinger, Secretary Milwaukee Dust Collector Mfg. Co., Milwaukee, Wis.

Dear Sir:—Your favor of yesterday at hand, giving official notice that arrangements are concluded whereby purchasers of your machines are fully protected under all the patents of Messrs. Kirk & Fender, the Geo. T. Smith Co., and S. L. Bean, which, with the Prinz patents, cover fully all known devices of importance necessary to a successful dust collector—and I see no reason why this arrangement will not be perfectly satisfactory and acceptable to our members, as well as millers at large. I congratulate you upon this "master stroke" which enables you to furnish a successful machine that carries with it a perfect title to the purchaser. My own experience with your machine warrants a favorable expression as to its merits, and your policy to protect purchasers is worthy the consideration of other manufacturers. Yours truly,

S. H. SEAMANS, Sec'y.

BOLTING CLOTH.

Don't order your cloth until you have conferred with us. It will pay you both in point of quality and price. We are prepared with specia facilities for this work. Write us before you order. Address

CASE MFG. CO., Columbus, Ohio.
Office and factory 5th St., North of Naughten.

IMPORTANT NOTICE.

Our attention having been called to the rumor that certain parties have purchased the American interest in what is commonly known as the Ganz-Mechwart patent, for purely speculative purposes, we deem it expedient to make public what is considered to form the basis of such a movement. Claim 2, in patent 251,124, reads: "In a mill for grinding grain or other material, a pair of chilled cast iron cylinders, the surfaces of which are obliquely grooved in the same direction, in combination with mechanism for revolving both rollers at different speeds, substantially as set forth." It will, for the present, serve our purpose, as well as that of the many friends of the Stevens roller mill in its various forms, to say that as against any loss that may arise from any conflict with the above letters patent, we give an *unqualified and unconditional guarantee.*

JNO. T. NOYE MFG. CO., Buffalo, N. Y.

IMPORTANT NOTICE.

To whom it may concern:—For the more complete protection of our patrons, and to secure them beyond question against loss or annoyance from suits for infringement with which they have been threatened, we have, at a great cost to ourselves, secured a LICENSE from the GEO. T. SMITH MIDDLINGS PURIFIER CO., of Jackson, Mich., KIRK & FENDER, of Minneapolis, Minn., and SAM'L. BEAN, of Washington, D. C., licensing the "PRINZ" dust collector under all dust collector patents owned by the parties above named. The patents now controlled by our company on this class of machines cover broadly the whole process of collecting dust in flour mills, and all the most modern devices by which the process is carried out.

The license, which we shall furnish to all parties having dust collectors made by us, carries with it *absolute* security and *protection* in the use of our machines. Yours very truly,

MILWAUKEE DUST COLLECTOR MFG. CO.,
JULIUS SCHLESINGER, Sec'y.

NOTICE.

NINTH ANNUAL CONVENTION.

SECRETARY'S OFFICE,
MILWAUKEE, Wis., May 16, 1883.

The next annual meeting of the Millers' National Association will be held in the Grand Pacific hotel, Chicago, commencing Tuesday, June 26, 1883. Every member should *make it his business* to be at this meeting. Make it manifest by your presence that you appreciate an association that has saved its members more money, in *dollars and cents*, than any other organization ever formed in this country, and the "grist isn't half ground out." While there may not be as much *desperate* business on hand as usual, there are still important matters to claim your attention. Let it be a grand re-union to celebrate victories won, renew old acquaintances and make new ones. Outsiders may join by making application to the secretary and accepting the terms offered at the Cleveland convention, viz., $5 per unit capacity—membership fee, and the assessment ($10 per unit) for 1883.

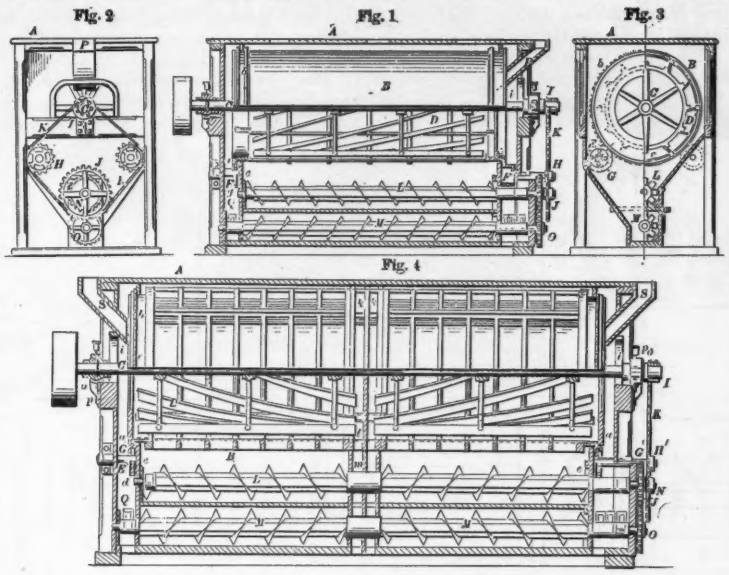
ORDER OF BUSINESS.

1. Opening of the convention, 11 o'clock A. M.
2. Report of committee on credentials.
3. Proceedings of last convention.
4. Enrollment of members.
5. Official report.
6. Call of standing committees and filling vacancies.
7. Appointment of committee on nomination of officers.
8. Reports of standing committees.
9. Reports from special committees.
10. General business.
11. Reports of committee on nominations, and election of officers for the ensuing year.

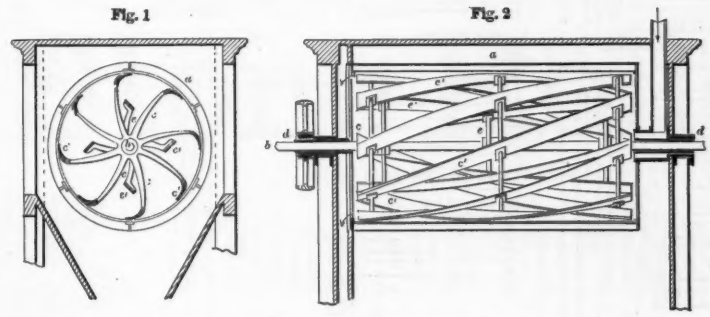
S. H. SEAMANS, Secy. and Treas.

MILLING PATENTS.

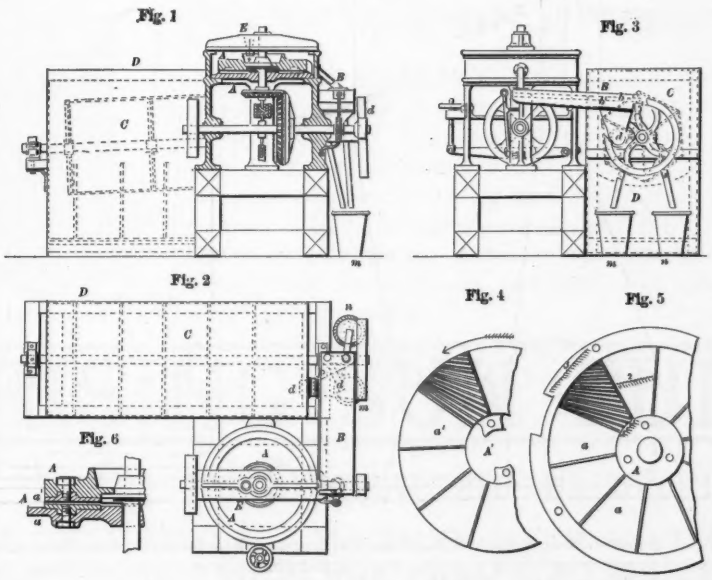
FLOUR DRESSING MACHINE.—To W. D. Gray, Milwaukee, Wis.; No. 278,702; dated June 5, 1883. This invention relates to improved means for supporting and imparting a positive rotation to a horizontal revolving cylinder; to an improved manner of constructing said cylinder of segmental sections and intermediate connecting-bars; to a double reel consisting of two sections constructed and mounted upon a common axis, and to various minor features of construction. Fig. 1 represents a longitudinal vertical section through the center of a single cylinder constructed on this plan, the upper half of the cylinder being shown in elevation and the lower half in section. Fig. 2 is an end elevation of the same. Fig. 3 is a transverse vertical section of the same. Fig. 4 is a longitudinal vertical section of a double-cylinder machine constructed on this plan, the upper half of the bolting cylinder or reel being shown in elevation, while the lower half is in section. Claims: 1. The revolving reel or cylinder provided with the smooth cylindrical and the toothed surfaces encircling the same, in combination with supporting-pulleys provided with corresponding smooth and toothed surfaces. 2. A horizontal bolting reel encircled by a smooth track or flange, and also by a line of gear-teeth, in combination with a wheel provided with teeth engaging with teeth of the reel, and also with a smooth supporting-surface bearing beneath the track or flange of the reel, whereby said pulley is adapted to serve the twofold purpose of supporting and driving the reel. 3. In combination with the bolting reel or cylinder having the flange *a* and teeth *b*, the supporting driving-pulleys provided with the teeth *e*, surfaces *d*, and flange *g*. The reel having the smooth encircling track or bearing *a* and adjacent teeth *b*, combined with the supporting-pulleys provided with corresponding smooth surfaces and teeth, smooth surfaces on both the reel and the pulley coinciding with the pitch-lines of the gear-teeth, whereby the two smooth surfaces are caused to travel at equal speeds without slip or friction upon each other. 5. The bolting-reel provided with smooth encircling tracks or flanges and gear-teeth at both ends, in combination with two longitudinal shafts and two supporting and driving pulleys, mounted on each shaft and located beneath opposite ends of the reel, each pulley having a smooth supporting-surface and a series of driving teeth, whereby a smooth positive motion is imparted to both ends of the reel. 6. The metallic ring or hoop forming the head of the bolting-cylinder, provided with the smooth flange *a* and teeth *b*, in combination with the driving and supporting pulley E, provided with a smooth surface, *d*, and toothed surface *e*. 7. In combination with a bolting-reel and devices for sustaining the same and preventing its longitudinal motion, a smooth encircling flange applied to the opposite end of said reel, and a sustaining pulley for said flange, having its surface adapted, as described, to permit the adjustment of the flange thereon in the direction of the axis of the pulley. 8. A bolting reel or cylinder having one end or head movable in the direction of its axis for the purpose of stretching the bolting-cloth, in combination with an encircling flange or track thereon and smooth supporting-pulleys beneath said flange, said pulleys having widened or extended surfaces to permit the movement of the flange thereon as the head of the reel is adjusted. 9. In combination with a horizontal bolting reel or cylinder, supporting-rolls located beneath its opposite ends, the rolls at one end being flanged and arranged to engage with a corresponding flange upon the reel to prevent the longitudinal motion of the latter, and the rolls at the opposite end being made with smooth extended surfaces adapted to permit the end of the reel to slide lengthwise thereon. 10. In combination with the bolting-reel, the supporting and driving pulleys, constructed as described, and located beneath one end of the same, the smooth supporting-pulleys located beneath the opposite end of the same, and the driving shafts G, extended end-wise through the machine, and each provided with pulleys at both ends of the reel. 11. In a flour dressing machine, the combination of the reel, the beaters, the pulley on the beater-shaft, the pulley on the conveyor-shaft, the two pulleys upon the respective shafts of the reel, driving and supporting rolls, and a single chain or belt, K, engaging with the four pulleys. 12. In a flour dressing machine, the combination of a horizontal reel, the beater-shaft, the rolls sustaining said reel, and gearing, connecting said rolls with the beater-shaft. 13. The combination of the beater-shaft, the bolting reel or cylinder, the two shafts provided with pulleys sustaining said reel, and a single driving-chain extending from a pulley on the beater-shaft to pulleys upon the two roller-shafts, whereby motion is communicated from the beater-shaft through a single connection to all the supporting-rolls of the reel. 14. In combination with the bolting-reel and the rotary spiral beaters therein, the inclosing case or body A, provided with the end opening for the admission of air, and with the top opening, *h*, to permit the escape of the same, whereby a continuous outward draft is produced through the bolting-surface during the action of the machine. 15. In a bolting reel, the combination of two end hoops or rings, a series of longitudinal ribbed bars of T form, having flat ends extending beyond the ribbed portion, said ends being applied and bolted to the inner surface of the rings with the ribs extending outwardly. 16. In a bolting-reel, the two end hoops, the longitudinal ribbed bars having their ends flattened and bolted to the inner surface of the hoops and the ribs presented outward, in combination with the segmental cloth-covered frames applied externally to the ribs and hoops and secured thereto. 17. In a flour-dressing machine, the combination, with the beater-shaft, of the boxes, of spheroidal form, mounted loosely in bearings.



PATENT NO. 278,702; FLOUR DRESSING MACHINE.



PATENT NO. 278,852; FLOUR SIFTING MACHINE.



PATENT NO. 278,718; GRIST OR FLOURING MILL.

FLOUR SIFTING MACHINE.—To Hermann Bauermeister, Hamburg, Germany; No. 278,852; dated June 5, 1883. This invention is illustrated in accompanying cuts. Claims: The combination, in flour sifting machines, of the reel *a*, shaft *b*, fliers *c*, constructed with concave blades or scrapers *c'*, and fliers *e*, constructed with backwardly inclined rejector blades *e'*, substantially as described.

GRIST OR FLOURING MILL.—To Abel Mariotte, Vereux, France; No. 278,718; dated June 5, 1883. This invention has reference to the dress or system of channeling for milling plates or metal millstones; and to a portable mill or milling apparatus, with mill plates, separator and bolt complete. The object is to enable the same pair of plates to grind all the way from very coarse to very fine, to crack grain into grits, or to reduce the grits to flour. The pair of plates are to be separated from each other more or less, according to the fineness of the grist. It is designed to pass the grain repeatedly between the plates in the reduction of the same to flour, the said plates being at each operation brought nearer and nearer together. Fig. 1 is a view in vertical section, partly in elevation; Fig. 2 a plan and Fig. 3 an end view of the complete mill. Figs. 4 and 5 are partial plan views of the runner and bed plate respectively; and Fig. 6 a partial vertical section through the mill plates. Claims: 1. In combination with supporting and adjusting means, the horizontal mill plates having each a metal grinding surface divided into sections by nearly radial grooves or channels, said sections being provided with teeth or serrations which gradually converge and diminish in depth and width toward the circumference of the plates, and are of a form and size adapted to crack or reduce by splitting the grain or grits delivered between them, the upper plate having an eye at the center. 2. The combination of the mill proper with grooved mill plates, the shaking sifter or separator, and the bolt, the latter arranged to receive the fine material from the sifter or separator. 3. The mill proper, comprising the mill plates with grooves or channels diminishing in cross section toward the circumference, and the means for supporting the same and for adjusting the distance between them in combination with the sifter or separator receiving the discharge from said plates, and the bolt receiving the finer particles from the sifter or separator.

Destruction of Oat Meal Mill Property.

In the fire which last week destroyed two elevators belonging to the Imperial oatmeal mill of Douglas, Stuart & Forest, at Chicago, the mill and office were not touched. The elevators were respectively known as the large elevator and the small or south elevator. The former was 130x60 feet, and 120 feet in height, with a capacity of 250,000 bushels; the latter was 70x45 feet, 75 feet in height, with a capacity of 70,000 bushels. Both were totally destroyed. The contents consisted of 40,000 bushels of corn, 550 barrels of oatmeal, 5 car-loads of corn meal, 3 car-loads of pearl barley, and 25,000 bushels of oats, which, with bags, cordage, boxes, etc., will exceed $35,000 damage to the stock. The loss on the buildings is estimated at $75,000, which will make a total of $110,000 at a low valuation. The insurance on the stock is $29,875, and on the buildings and machinery $29,625. The same firm owned the oat meal mill burned a few days previous at Oregon, Ill., and Messrs. Douglas and Stuart were at that place at the time looking after their losses.

There are two theories in vogue among the persons connected with the establishment as to the origin of the fire, and both are alike probable. The one most generally believed is that some sparks from the chimney of the engine room were blown through some crevice into the room and ignited the contents; another theory, and the one accredited by the proprietors, is that the oat dust, which is taken from the stones in a heated condition when ground and placed in the bin room, ignited by spontaneous combustion. In 1880 an elevator in Chicago, owned by this firm, was burst open by the pressure of grain, entailing a loss of $75,000. Notwithstanding their repeated and heavy losses, Messrs. Douglas, Stuart & Forest will reconstruct the buildings at Chicago as soon as possible.

The mill destroyed at Oregon had a capacity of 450 barrels per day. The inside and roof of the mill were two hours burning. The loss on the building is about $35,000; on stock, $30,000; partially insured. This mill, together with the elevators, was destroyed by fire five years ago.

Coleman & Hahn's flour mill at Homer, O., was destroyed by fire on the 10th inst. Loss estimated at $18,000; insurance $13,000.

Diagram and Plan of a Fifty Barrel Mill.

BY A MINNEAPOLIS MILLING ENGINEER.

The annexed diagram needs no description, as the run of the material can be easily followed by any person. The mill is in operation in Dakota, and is giving excellent results and general satisfaction. Next week we will give the diagram of "Winter Wheat," who competed for the prize offered for problem No. 2, and who came very near carrying it off.

Unseasonable Weather.

The backwardness of the present season has called out the following, furnished by a correspondent of the *Congregationalist*, on the year 1816, which has been called "the year without a summer:"

January and February were mild; March was cold; April began warm, but ended in snow and ice. Ice formed an inch thick in May, and fields were planted over and over, until it was to late to replant. June was the coldest ever known and frost and ice were common. Almost every green thing was killed—fruit was nearly all de stroyed. Snow fell to the depth of nearly ten inches in Vermont, seven in Maine, three in the interior of New York and also Massachusetts. There were a few warm days. It was called a dry season, but little rain falling. The wind blew steadily from the north, cold and fierce. Planting and shivering were done together, and farmers who worked out their taxes on country roads wore overcoats and mittens. On the 17th of June a heavy snow fell in New England and the cold was intense. A farmer who had a large field of corn in Tewksbury built fires around it at night to ward off the frost, and many an evening he and his neighbors took turns watching them. He was rewarded with the only crop of corn in the neighborhood. Considerable damage was done in New Orleans in consequence of the rapid rise of the Mississippi river. Fears were entertained that the sun was cooling off. July was accompanied with frost and ice, and Indian corn was nearly all destroyed; some favorably situated fields, however, escaped. August was more cheerless, if possible, than the summer months which preceeded it. Ice was frozen half an inch in thickness, and Indian corn was so frozen that the greater part was cut down and dried for fodder. Almost every green thing was destroyed in this country and in Europe. On the 30th snow fell at Barnet, forty miles from London. Very little corn ripened in New England and the middle states. Farmers supplied themselves with corn produced in 1815 for seed in the spring of 1817. It sold at from $4 to $5 per bushel. September furnished about two weeks of the finest weather of the season, but in the latter part of the month ice formed an inch thick. October had more than its share of cold weather. November was cold and snowy. December was comfortable, and the winter following was mild. Very little vegetation was matured in the Eastern and Middle states. The sun's rays seemed to be destitute of heat during the summer; all nature was clad in a sable hue, and men exhibited no little anxiety concerning the future of this life. The average price of flour during the year in the New York market was $13 per barrel. The average price of wheat in New England was 97 shillings per quarter. Bread riots occurred throughout Great Britain in 1817, in consequence of the high price of the staff of life.

CORRESPONDENCE.

Bridgetree on "Experts," "Cranks," and Mystery in Milling.

Editor Northwestern Miller:

I have seen in your paper of late two or three articles bearing on the absurdity of mechanics thinking that they had any bottom facts, information, or secrets in reference to their business that they would not be justified in giving to the public.

If we would live by the golden rule we would be obliged to assist one another all we can. At the same time it is equally true that a man ought not to "go back on himself."

If self preservation is the first law of nature, and a great many believe it to be also true, the intelligent readers of the NORTHWESTERN MILLER will admit that there may be a question whether a man is really justified in telling all he knows, or "wearing his heart on his sleeve for daws to peck at."

Had we all opportunities alike to give the public, honestly, the benefit of our experience, there is no doubt that we would secure more than we could give; but it is not so, we have not had the same opportunities, and having had them we do not all improve them as we might, but depend on other people to keep us posted.

If we could all meet on a level in this matter with equal information and ability, and desire to instruct, we could keep the balance even, but we cannot do so. I am of course speaking of matters that apply to the means of money-getting and making a living.

To suppose a case: A boy is placed in an establishment by his friends to learn the milling business. He not only learns what they can teach him, but by careful and hard study, and oftentimes extensive travel so adds to his knowledge that he is justified in styling himself an "expert," would he be expected to give the benefit of his experience to the first questioner that comes along, when he knows that the party is simply trying to gain information without cost to use in competition with himself? I think not.

There are men in every businesss too indolent to study, who go about pumping every one that they can get hold of who is known to have any information that they have need of, and whose sole motive is to save themselves from putting their hands down into their pockets and paying for the information desired. Then there are others who, by the assistance of money or friends, have assumed positions they are entirely unfitted for, who pursue this course, and its direct tendency is to take the bread out of the mouth of the honest workman. In this way, by holding such positions, they exclude men who, having served a regular apprenticeship and fitted themselves for these duties, have a perfect right to expect them. Quacks are not confined to law or medicine, yet those men are always the loudest in condemning and sneering at the miller with a "secret" the "mysterious miller," etc.

Speaking of law and medicine suggests to me the question of how much law or medicine one would be apt to get for nothing from some prominent member of either of those professions, and who has more secrets than these men, let me ask. Yet those same men will engage mechanics in conversation by the hour on matters appertaining to their business and never think of asking if anything is to pay. If any class of workers are justified in having their secrets, others are, consequently the miller has a right to his, and if he can make money out of it, so much the better for him, and I think all sneers entirely out of place.

In your journal some time ago, I saw an article on the "mysterious" miller, in which reference is made to the manufacturers of New England speaking so freely of their business and matters appertaining to it. I would like to ask that gentleman what class of business men it is that have more secrets than those same New England manufacturers? The fact is, around and about their establishments everything is a secret, the different departments being under lock and key, and watchmen stationed at almost every door. It is true they have their conventions, at which affairs relating to the interests of their business are discussed, but it is finance, production, raw material, insurance, the best way to cut down wages so that there will be the least kicking on the part of the operatives, etc.; not the construction of dyes, finish of cloth, new designs of prints goods, and what they are going to bring out to tickle the feminine heart next season.

The gentleman who wrote that article was very unfortunate in his illustration as applicable to the "mysterious miller," when its direct tendency would be to introduce another competitor into an already crowded market. The readers of the NORTHWESTERN MILLER will, of course, not identify the management of that paper with the sentiments expressed in this article, as this is written by a miller from a miller's stand point, who thinks that there may be two sides to every question. The management of the NORTHWESTERN MILLER receives every day letters from all parts of the world, to the personal knowledge of the writer, containing inquiries that to answer properly involves an expense of time and money, that if the writers subscribed for the paper all their natural lives and paid in advance, would not begin to be an equivalent. I have my doubts whether or no information given without paying its proper price either in time or money, is ever appreciated at its proper value; it is so easy to ask questions and so easy to answer them if a person has had the proper experience, that it seems a very simple matter anyway, hardly worth mentioning, although it may be of considerable money value to them.

I have a little story illustrating this point. It amused me very much at the time, and I only regret that I have not the pen of a "Mark Twain" to do it justice.

Some years ago I was running a mill for a company that did a mixed business, corn meal and flour. I was called into the office one afternoon and introduced to a gentleman, as Mr. ———, by one of the owners, and informed that Mr. ——— wished to interview me in regard to a little mill he had a short way out in the country. He opened the conversation by saying that he had a mill some four miles in the country in which he did custom grinding on feed exclusively, that it had been burnt down and rebuilt a short time ago, that he had been awfully taken in by the mill-

Continued on page 597.

The Eagle Mill Company

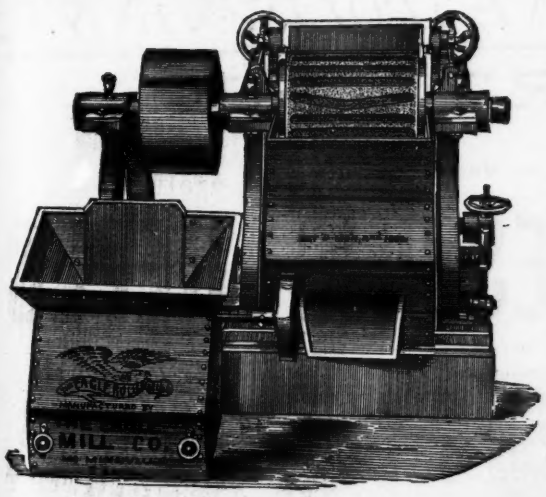
McMinnville Tennessee

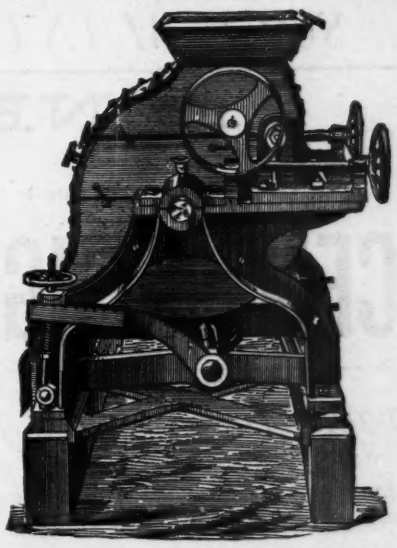
Sole Manufacturers and Proprietors of the

Eagle Stone Roller Mill

—AND THE—

Rising Sun Purifier





The Highest Results and Satisfaction Guaranteed

Thirty Days' Trial Allowed to all Purchasers.

The ***EAGLE STONE ROLLER*** *has no equal for regrinding either first, second or third Middlings or Bran. Beats any Metal or Porcelain Roll. Guaranteed to do so and Fifty per cent. cheaper, quantity and quality considered. Have hundreds in use and certificates in abundance proving our claims. They grind perfectly cool and even, and are easily kept in order.*

THE RISING SUN PURIFIER

"Away with the Fan and Expensive and Hazardous Dust Room."

THIS PURIFIER IS THE ONLY PERFECT MACHINE EVER INVENTED AND OFFERED TO THE MILLING TRADE FOR PURIFYING MIDDLINGS.

OUR GUARANTY:

We propose, with the RISING SUN PURIFIER, to come in competition with any machine now manufactured as a first-class Purifier; to double the work of such, only require one-half the power, and guarantee the durability of our machine equal to any other Purifier. We will sample Middlings with any Purifier in the market with less waste, will work all grades of middlings, no fan, dust room or air blast being required, and will do this for one-third less money than the price of any other first-class Purifier, when work is considered. This may look like an impossibility to some parties, but we pledge ourselves to back and prove all we claim. Try us, millers. Get the best Purifier in the world. We will give you thirty days to try and see we are no humbug.

Address, EAGLE MILL CO., McMinnville, Tenn.

TWO PERFECT MILLING MACHINES

PEERLESS DUST COLLECTOR. | MORGAN SCOURER AND POLISHER.

SEND FOR PRICES.

READ THE TESTIMONIALS.

MINNEAPOLIS, Minn., Oct. 30, 1882.

Messrs. Kirk & Fender, Manufacturers of Morgan's Wheat Cleaners and Scourers, Minneapolis, Minn.

GENTLEMEN: * * * Would not be without them for anything. I can see that my bolting capacity has increased largely; the same with my purifiers. The only way I can account for this is that my wheat is well cleaned. I do not have any oats or fine fuzz to contend with, consequently my bolts and purifiers work free and open.

W. H. HELFRICH, Head Miller "Anchor" Mill.

MILWAUKEE, Dec. 5, 1882.

Messrs. Kirk & Fender, Minneapolis, Minn.

GENTS: * * * We have been running both the Morgan Scourer and Polisher for the past 14 years, and up to the present we consider them the best in the market. Respectfully yours,

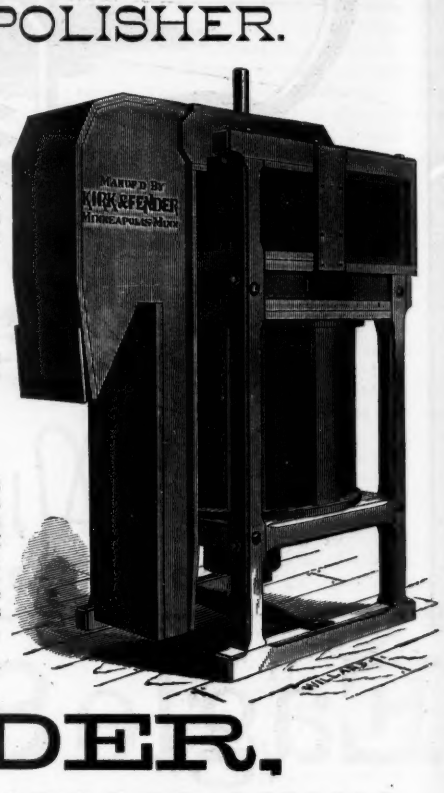
C. MANEGOLD & SON.

WILMINGTON, Del., March 1, 1883.

Messrs. Kirk & Fender, Minneapolis, Minn.

GENTLEMEN: We have had the Peerless Dust Catcher about six weeks; it is giving the best of satisfaction. We are working it on a purifier which takes its middlings from the head end of the coarse grader. The dust from this grade of middlings is the softest, stickiest material in the mill, being worn off the coarse middlings while traveling in a conveyor to the grader. It has given us no trouble whatever, more than to oil it once a day, and I say, without fear of contradiction from any one who will examine or give the machine a trial, that it is the best machine ever offered to the millers of America for the purpose of collecting the dust drawn out of a purifier.

Yours truly, O. H. TITUS,
Head Miller of the Wm. Lea & Son Co.'s Mills, Wilmington and Newcastle, Del.



KIRK & FENDER,

SOLE MANUFACTURERS, MINNEAPOLIS, MINN.

A NEW DEPARTURE!

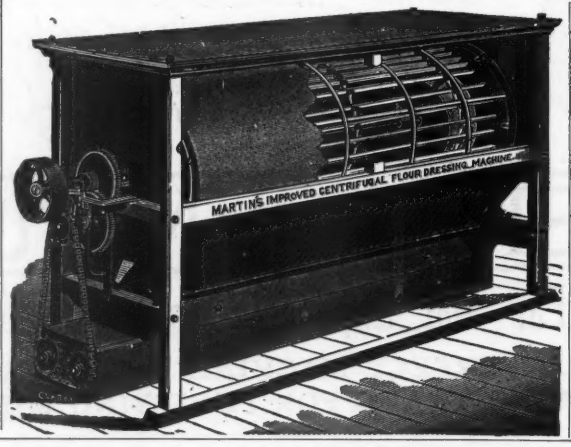
We are the Sole and Exclusive Licensees for this Country under the **Moritz Martin Patents** on

CENTRIFUGAL FLOUR DRESSING REELS

THE CENTRIFUGAL *has more than FOUR TIMES the capacity of the ordinary reel, and will make clear flour and a clean finish on stock that cannot be treated in the common reel without loss, no matter how much silk it is passed over.*

IT IS SPECIALLY ADAPTED *to handling soft, re-ground material, full of light impurities, whether from rolls or stone.*

IT IS VASTLY SUPERIOR *to the common reel for dusting middlings.*



IT IS INDISPENSABLE *to a CLOSE FINISH in any system of gradual reduction milling, and will improve the quality of the low grade flour at the same time it makes the offal cleaner.*

IT MAKES A CLEAN SEPARATION *on caked and flaky meal from smooth rolls, which no other style of reel can do.*

THEY CAN BE USED TO ADVANTAGE *as a complete system of bolting, to the exclusion of the ordinary reel.*

And we are now prepared to fill orders for machines with latest improvements, which include

OUR NEW DOUBLE CONVEYORS, CLOTH FIXING AND STRETCHING DEVICE, AND SIMPLIFIED MANNER OF DRIVING.

OVER ONE HUNDRED SOLD IN SIX WEEKS!

REFERENCE TO LEADING MILLERS IN THE UNITED STATES.

Write for Descriptive Circulars and Price List to

GEO. T. SMITH MIDDLINGS PURIFIER CO., JACKSON, MICH.

Minutes of the Dust Club.—IX.

BY THE SECRETARY

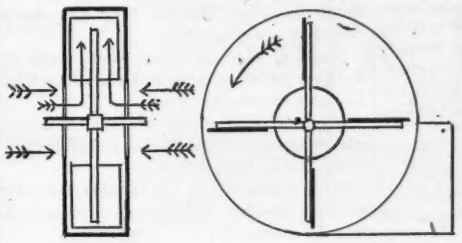
President Jack Stoneman was on time and called the meeting to order. He said: "In calling this meeting to order I wish to say a few words. I have often regretted that I was not present at the organization of the club. I read the Professor's inaugural address, in which he said that the Latin words *asina molendaria* were used as describing a mill donkey. I must admit there are quite a number whose ears are so long they leave their mark wherever they go, and object to gentler and more noble animals crossing their path. Their bray is loud, showing the truth of the adage that 'empty vessels make most sound,' but in this bray you can see that they have not got over their snake-like nature, and get into your bosom to betray you like that species of reptile. They hiss almost as loud as they bray. There are only two animals that hiss: the snake and the goose. The one is venomous, the other only silly, imbecile, petty. When this hanger-on, this barnacle, partakes of both natures he becomes dangerous. You know how to treat each character separately. If simply a snake, scotch it. If a nincompoop, laugh at it. But when you are beguiled into the fangs of the serpent by the apparent docility and artlessness of the goose there is danger. Yes, there are mill asses, barnacles, people who live off the milling community by their wits, without having any knowledge whatever or offering a single practical idea as an excuse. Then, again, there was some mention in the inaugural of the word 'damsel' being derived from 'demoiselle,' and that it was called 'damsel' from the noise it made. This is not so. The noise made by the canter of a donkey better illustrates the rattle of what is now known wherever used as the 'dansil.' You have doubtless heard the quotation from Virgil: '*Quadrupedante putrim sonitu quatit ungula campum.*' The pronounciation of this in a quick manner resembles the sound of the dansil, and the following from Aristophanes represents the croaking of some of the frogs of journalism: '*Brek-ke koax koax.*' "

Bro. Mace: "The subject of grain cleaning is quite important, and I find in my travels that the operation of fans is not properly understood, when it is taken into account that air, like every other gas or combination of gases, possesses weight. Some persons who have been taught that the air exerts a pressure of 14.7 lbs. per square inch, cannot, however, be got to realize the fact that a cubic foot of air at the same pressure and at a temperature of 62 degrees, weighs the thirteenth part of a pound, or over one ounce; 13.141 cubic feet of air weigh one pound. In round numbers 30,000 cubic feet of air weigh one ton; this is a useful figure to remember, and it is easily carried in the mind. A hall 61 feet long, 30 feet wide, and 17 feet high will contain one ton of air.

"The work to be done by a fan consists in putting a weight—that of the air—in motion. The resistances incurred are due to the inertia of the air and various frictional influences. The nature and amount of these last vary with the construction of the fan. As the air enters at the center of the fan and escapes at the circumference, it will be seen that its motion is changed while in the fan through a right angle. It may also be taken for granted that within certain limits the air has no motion in a radial direction when it first comes in contact with a fan blade. It is well understood that, unless power is to be wasted, motion should be gradually imparted to any body to be moved. Consequently, the shape of the blades ought to be such as will impart motion at first slowly and afterward in a rapidly increasing ratio to the air. It is also clear that the change of motion should be effected as gradually as possible. Fig. 1 shows how a fan should not be constructed; Fig. 2 will serve to give an idea of how it should be made.

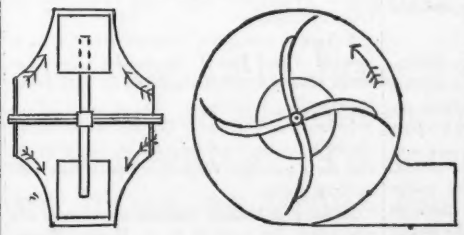
"In Fig. 1 it will be seen that the air, as indicated by the bent arrows, is violently deflected on entering the fan. In Fig. 2 it will be seen that it follows gentle curves, and so is put gradually in motion. The curved form of the blades shown in Fig. 2 does not appear to add much to the efficiency of a fan; but it adds something and keeps down noise. The idea is that the fan blades when of this form push the air radially from the center to the circumference. The fact is, however, that the air flies outward under the influence of centrifugal force, and always tends to move at a tangent to the fan blades, as in Fig. 3, where the circle is the path of the tips of the fan blades, and the arrow is a tangent to that path; and to impart this motion a radical blade, as at C, is perhaps as good as any other, as far as efficiency is concerned. Concerning the shape to be imparted to the blades, looked at back or front, opinions widely differ; but it is certain that if a fan is to be silent the blades must be narrower at the tips than at the center. Various forms are adopted by different makers, the straight sides and the curved sides, as shown in Fig. 4, being most commonly used. The proportions as regards length to breadth are also varied continually. In fact, no two makers of fans use the same shapes.

FIG. 1



"As the work done by a fan consists in imparting motion at a stated velocity to a given weight of air, it is very easy to calculate the power which must be expended to do a certain amount of work. The velocity at which the air leaves the fan cannot be greater than that of the fan tips. In a good fan it may be about two-thirds of that speed. The resistance to be overcome will be found by multiplying the area of the fan blades by the pressure of the air and by the velocity of the center of effort, which must be determined for every fan according to the shape of its blades. The velocity imparted to the air by the fan will be just the same as though the air fell in a mass from a given height. The height can be found by multiplying the velocity by itself and dividing by 64, to get the height. Thus, let the velocity be 88 per second, then $88 \times 88 = 7{,}744$, and $\frac{7{,}744}{64} = 121$. A stone or other body falling from a height of 121 feet would have a velocity of 88 per second at the earth. The pressure against the fan blades will be equal to that of a column of air of the height due to the velocity, or, in this case, 121 feet. We have seen that in round numbers 13 cubic feet of air weigh one pound, consequently a column of air one square foot in section and 121 feet high, will weigh as

FIG. 2



many pounds as 13 will go times into 121. Now, $\frac{121}{13} = 9.3$, and this will be the resistance in pounds per *square foot* overcome by the fan. Let the aggregate area of all the blades be 2 sq. ft., and the velocity of the center of effect 90 feet per second, then the power expended will be $\frac{90 \times 60 \times 2 \times 9.3}{33{,}000} = 3.04$ horse power. The quantity of air delivered ought to be equal in volume to that of a column with a sectional area equal that of one fan blade moving at 88 feet per second, or a mile a minute. The blade having an area of 1 square foot, the delivery ought to be 5,280 feet per minute, weighing $\frac{5{,}280}{13} = 406.1$ lbs. In practice we need hardly say that such an efficiency is never attained.

"The number of recorded experiments with fans is very small, and a great deal of ignorance exists as to their true efficiency. Mr. Buckle is one of the very few authorities on the subject. He gives the accompanying table of proportions as the best for pressure of from three to six ounces per square inch:

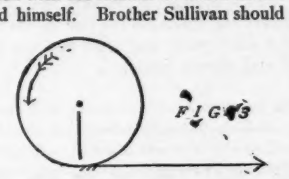
Diameter of fans.	Vanes.		Diameter of inlet openings.
	Width.	Length.	
ft. in.	ft. in.	ft. in.	ft. in.
3 0	0 9	0 9	1 6
3 6	0 10½	0 10½	1 9
4 0	1 0	1 0	2 0
4 6	1 1½	1 1½	2 3
5 0	1 3	1 3	2 6
6 0	1 6	1 6	3 0

"For higher pressures the blades should be longer and narrower, and the inlet openings smaller. The case is to be made in the form of an arithmetical spiral widening, the space between the case and the blades radially from the origin to the opening for discharge, and the upper edge of the opening should be level with the lower side of the sweep of the fan blade, somewhat as shown in Fig. 5.

"A considerable number of patents has been taken out for improvements in the construction of fans, but they all, or nearly all, relate to modifications in the form of the case and of the blades. So far, however, as is known, it appears that, while these things do exert a marked influence on the noise made by a fan, and modify in some degree the efficiency of the machine, that this last depends very much more on the proportions adopted than on the shapes—so long as easy curves are used and sharp angles avoided. In the case of fans running at low speeds, it matters very little whether the curves are present or not, but at high speeds the case is different."

Bro. Coborne: "I always thought the brother who has just sat down was a good deal of a 'wind bag.' His fan theory got full play this evening, so that I trust he will be satisfied with the manner in which he has ventilated himself. Brother Sullivan should give

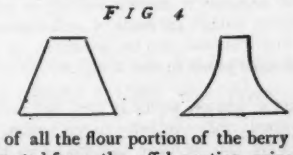
FIG 3



us some idea of his mode of granulation. I would like to speak about rolls and millstones, as this subject is one of the prolemic questions of milling at present, and has assumed a phase in European countries, where each has its advocate, that must be interesting to American millers, who are only interested in the best and most economic methods of flour making. Even among us each system has its advocate, but then, it must be said, that is the case only in sections where the rolls have not been properly tested. When iron rolls were first introduced, they were all of the same size and ran with the same speed. This caused the surfaces to press closely together, and they exerted no other force than that of pressure alone. The next improvement made on rolls was to cause them to run with differential speed, the surface of one roll moving faster than that of the other.

"The rollers are becoming very popular in many places. The rollers do not treat the bran so severely as the millstones, as it is not a tearing as in the stones, and there are, in consequence, fewer fine particles to be taken from the flour. The semolina and middlings are cleaner, and consequently a greater percentage of good flour is made. Kick claims as advantages in favor of rolls, that they ad-

FIG 4



mit of all the flour portion of the berry being separated from the offal portion, principally while they are both in large pieces. They also give, if required, separately, a more valuable semolina flour than can be obtained by the ordinary methods. On the other hand, M. Hardouin, a French millwright, claims that middlings should not be crushed, but ground, as he claims that crushing makes a dead flour which cannot be again made lively, and the result is a poor unpalatable bread. He also claims that an ordinary pair of millstones will do as much as four sets of rolls and at the same time use much less power. He claims that while a whiter product is supposed to come from the rolls the real reason is that the bran is flattened out so much that it can not be seen in the flour until the latter is made into bread. Besides this, he claims that the germ is rolled out and not crushed. There is also more offal by the rolls in consequence of many flattened particles being carried over the ends of the bolts.

"There are others who strongly advocate rolls, and say that they are essential to an advanced state of milling. Bolts are particularly adapted for hard wheat, such as the Hungarian. Hard wheat cannot stand the tearing consequent on low grinding,

FIG 5

as the bran would be cut up fine and a poor, specky flour would be the result. In the high milling system by buhrs, the wheat is gently run between millstones, which are separated by one-twelfth part of an inch and then finer and finer until the product is in proper condition. When the middlings are freed from the outer particles they are again ground, and this grinding produces a finer groats, grits, and flour. By each successive cracking the flour and grits produced will contain more particles from the interior of the wheat, and as the interior or starchy cells yield a whiter product, the flour and grits resulting will become more and more white. The flour from the third groats will be far whiter than that from the second, and so on. This is not so striking in the grits, as they are still mingled with the particles of bran, which are, of course, much lighter than the grits, and this property is taken advantage of by the middlings purifier and the proper separations made. The combination of both rolls and millstones is found to not only soften down the feelings of the advocate of millstones, but do good work, and a very large percentage of good white flour is made by this system, as purification is somewhat simplified, because the bran is protected and comes away in much larger flakes, but in order to obtain all these advantages, special arrangements must be adopted to meet the modes necessary to reduce the different kinds of wheat scientifically so as to obtain a maximum result, and rollers must be chosen with a view to the superiority of their construction. There are two distinct kinds, one which crushes the grain and the one which cracks it. The crushing system is again divided into two systems, one in which the rolls revolve with an equal speed and have an equal diameter, and one in which one cylinder revolves more rapidly than the other. These systems have been found in practice to be limited with soft wheat, and in consequence various improvements have been made to regulate the pressure to suit the kind of wheat to be acted upon. The disk roller system is somewhat different and requires less power. Its great advantage and peculiarity lies in the fact that it can turn the grains round and force them through a half cone. In the rolls there is this disadvantage. The operation of crushing the starch kernels with their cells, helps to destroy the cohesion of the gluten and the cellular sacs which contain it will attain to so much larger volume under the action of the rolls, that they are apt to go into the bran and be separated from the flour in passing through the bolt. There is some disadvantage in grinding with stone alone, as every stone must be dressed differently, to suit the work which it has to do, so that it would be practically impossible to conduct any high milling system on two runs of French buhrs. The ribbed rollers are daily taking the place

of the smooth rollers. There have also been introduced in the past few years cutting machines such as those used for cutting oats into meal. And it is claimed for them that they produce a larger quantity of finer flour when used in connection or in combination with millstones. These machines have been constructed with a view to overcome the obstacle found in making flour during the operation of disintegration, and theyenable the miller to prepare the soft wheat for the roller mills in such a manner that the resultant products shall be as little inferior to those of hard grain as the texture of the grain itself will admit, and to protect it as much as possible from the liability to be squeezed to which it is particularly exposed from the more tender nature of its construction. In order to keep up with the march of improvement, it is highly necessary that the miller should understand the construction and composition of the various grains so as to be able to understand the nature of the stone or roll which will best granulate it, and thus treat it scientifically and save its nutritive constituents and separate them from those which are not nutritive.

None of the essential oil evaporates in grinding with rolls, and this is one reason why the flour appears whiter. Rollers having a differential speed don't make as white a flour as these with an even speed and the porcelain roller gives a whiter flour than those made from chilled iron. Porcelain rollers have more cells to absorb the moisture than chilled iron, so that when they absorb it at the point of contact there is more time for the atmosphere to act upon it while the roll is revolving until the same point comes in contact again. The starch granules are very liable to absorb the moisture, and this discolors the flour more than heating. It is a well known fact that unventilated millstones give a far more yellowish tint to the flour than the ventilated ones."

Bro. Grist: "When Bro. Coborne got on his legs he hinted slyly that Bro. Mace was something of a blower. He has been talking an hour about ventilated millstones; it is time he should stop."

Bro. Edwards: "What about form and color. I would like to ——"

"Adjourn," shouted Bro. Dunn.

The meeting accordingly adjourned.

The Wheat Crop.

The department of agriculture for June, reports the condition of winter wheat lower than in May throughout the entire area, with a few exceptions. The decline amounts to 4 points in Connecticut, 14 in New York, 2 in Ohio, 8 in Indiana, 15 in Illinois, and 7 in Missouri. It is slight in Michigan, and generally throughout the south. The general average condition is 75 against 83 in May. In June, 1882, it was 99 for winter wheat. It is by states as follows:

Connecticut	92	Arkansas	80
New York	63	Tennessee	85
New Jersey	101	West Virginia	88
Pennsylvania	97	Kentucky	77
Delaware	83	Ohio	60
Maryland	98	Michigan	80
Virginia	93	Indiana	67
North Carolina	95	Missouri	70
South Carolina	95	Illinois	51
Georgia	96	Kansas	89
Alabama	95	California	88
Mississippi	83	Oregon	90
Texas	86		

These figures indicate the condition of growing wheat without reference to loss by plowing up winter-killed areas. Spring wheat has been increased about 500,000 acres, or nearly 5 per cent. Wisconsin reports a reduction of 1 per cent, Iowa 2; Minnesota calls the increase 5 per cent, Nebraska 7, Dakota 40, and Montana 35. The spring wheat states have an acreage of nearly 10,000,000 acres. The condition of spring wheat is everywhere high, averaging 98, the same as last year. The area of barley is increased 5 per cent; the total acreage is about 2,350,000; average condition, 98. Increase in area of oats 400 per cent; area nearly 19,200,000 acres. The condition is high, averaging 96.

The mill of W. E. Ludlow, at Griggsville Pike Co., Ill., has recently changed hands through the agency of J. M. Moore & Co., of St. Louis, the purchaser being G. W. Castle, of Marquette, Kas.

Moses Thompson's flour mill at Marysville, O., was burned June 10. Loss $12,000; insurance, $6,000.

SHORTS.

Since the general introduction of rollers back lash has not given so much trouble to millers as formerly, still it is found necessary to use a pretty heavy fly-wheel so that its momentum will exceed that of all the machinery run directly from the engine.

*

The coil spring has yet its place in the mill as it acts as an elastic reservoir and equalizes the varying impulses of power before acting on the machinery.

*

It is claimed by a writer in a German milling paper that musty grain may be rendered sweet by immersing it in boiling water and letting it remain until the water becomes cold. The quantity of water must be double that of the grain to be acted upon.

*

Great care should be bestowed on the hanging and care of shafting. A line of shafting should run true and smoothly without jumping or jerking. If a line runs true and the pulleys do not wobble, or the boxes exude oil, it is a real delight to a good miller and like "a thing of beauty, a joy forever."

*

A mill should be erected with a view to its permanency. The foundations should be strong and rigid and the timbers sound and well seasoned.

*

Springing and shrinking timbers and settling walls cannot give the necessary support to machinery nor reduce friction to a minimum.

*

The reason of unsatisfactory running of shafting is not always its location in an improperly constructed building. The millwright is often at fault in not hanging the shafting properly.

*

When the shafting is properly hung and the machinery in operation the line should be inspected every now and then and any defect which may appear remedied.

*

This is often found necessary with the best hung shafting in the best constructed building if the economy of power is worth looking after, for there are so many disturbing causes affecting the integrity of a line that it is impossible to depend on long continued accuracy unless constant attention is given to the condition of the shafting.

*

A box slightly out of line or level will absorb a large amount of oil, and yet be continually hot, waste power by unnecessary friction, besides grinding and cutting the shaft. It will always pay to attend closely to such matters.

*

A miller should always keep a strict watch on his yield and be certain that he doesn't deceive himself into tninking that he is making flour out of less wheat than others, and less than he really is.

*

One way to be successful in milling, and the only true way, is to get a reputation for making the best flour, and this can only be done by purchasing the best wheat and then keeping the grade regular and uniform.

*

Where steam power is used the miller should keep an account of the fuel used, its cost, etc., so that he can see where he stands and what he is doing all the time, and when he knows he is right, go ahead. The golden rule is not to make any more flour than he can sell to advantage and make a profit on.

*

In friction gearing no power is wasted by loss of friction, the friction itself being the means used to transmit the power, and in point of economy it exceeds belting or cogs. The driving pulleys are made of well-seasoned wood, and the faces can be beveled so as to communicate power in any direction.

*

Where a friction pulley is used, the boxes and journals will not heat to any extent, as the pressure can be made uniform by an idle pulley made of wood and placed on the opposite side to counteract the pressure. This cannot be done with a belt.

The mill at Peoria, Iowa, near Oskaloosa, and owned by R. Warren, was recently burned. Loss $10,000; insurance, $6,000.

MFG. AND TRADE.

W. F. Kerdolf, Lexington, Mo., recently ordered an Allis-Gray set of rolls.

B. W. Tanquary, Beloit, Kas., has ordered a pair of buhrs of the Great Western Mfg. Co.

Jacob Taylor & Sons, Cameron, Mo., are adding a pair of buhrs, bought of the Great Western Mfg. Co.

E. E. Fuller, of Ottawa, Kas., has lately ordered an engine, core wheel, etc., from the Great Western Mfg. Co.

Zimmerman & Harter, Sedalia, Mo., are improving their mill and have ordered an Allis-Gray set of rolls.

John Schaab, Papillion, Neb., has sent in his order to the Great Western Mfg. Co., for a 2 reel bolting chest.

H. Tucker, Halton, Kas., has sent in an order to the Great Western Mfg. Co., for a Cope & Maxwell pump.

Emerson, Sherman & Co., Sioux Falls, D. T., have placed an order with the Noye Mfg. Co. for a Stevens roller mill.

Obarn & Baldwin, of Wapaca, Wis., are putting in three Stevens roller mills to be furnished by the Noye Mfg. Co.

Messrs. Allis & Co., Milwaukee, recently received another order from Consigny & Worth, Avoca, Ia., for a Gray roll.

Varner & Baggarly, Odessa, Mo., are adding wheat heaters and other furnishings, bought of the Great Western Mfg. Co.

John O. Cain, Cain City, Kas., is overhauling his mill, and has placed his order for machinery with the Great Western Mfg. Co.

Herr & Cissel, Georgetown, D. C., have purchased a gradual reduction machine for grinding middlings, from E. P. Allis & Co.

G. N. Miner, of Cedar Falls, Iowa, is putting in five additional pairs of Stevens rolls, to be furnished by the Noye Mfg. Co., of Buffalo.

E. P. Allis & Co. were recently favored with an order from Landes & Beal, Atchison, Kas., for six pairs Allis rolls in the Gray frame.

E. P. Allis & Co. have received an order from Roger Pennypacker & Co., Frankfort, Pa., for 7 pairs of Allis rolls in Gray's frames.

Wilderman & Hill, Freeburg, Ill., have placed their order with Messrs. Allis & Co., Milwaukee, Wis., for an Allis-Gray roller mill.

C. R. Davis, a prominent miller of Denver, Col., has recently added two four reel chests to his mill, received from the Great Western Mfg. Co.

Ballard & Ballard, of Louisville, Ky., have planted an order with the Jno. T. Noye Mfg. Co., of Buffalo, for three double Stevens roller mills.

Thos. Wolf, West Farm, New York City, lately filed an order with Messrs. Allis & Co. for a Wegmann's porcelain roller mill in Gray's frame.

Yeager & Anderson, Portsmouth, O., have ordered of the Jno. T. Noye Mfg. Co. a 4-break Round's sectional roller mill and a detached mill.

J. Jenke & Co., Sand Beach, Mich., lately placed an order with Allis & Co., of Milwaukee, for 4 pairs of Wegmann's porcelain rolls in Gray frames.

Richards & Butler, Indianapolis, Ind., are rebuilding the mill of C. F. Moore, Waveland, Ind., and are putting in a full outfit of Allis-Gray rolls.

Port Clinton, O., is to have a new roller mill to be built by O. J. True & Co. The Noye Mfg. Co., of Buffalo, will furnish Stevens roller mills for it.

F. H. Stafford, of Richmond, Ind., whose mill was recently destroyed by fire, is rebuilding. The Richmond City Mill Works furnish the machinery.

The Williams & Orton Mfg. Co., Leavenworth, Kas., recently ordered 4 pairs of Allis-Gray rolls for C. H. Guenther & Son, San Antonio, Tex.

Sylvester Bros., Boscobel, Wis., have ordered of the Noye Mfg. Co. a Round's sectional roller mill and a detached mill, both with Stevens corrugations.

Philip Dawson, of Elgin, Ia., has ordered of the Noye Mfg. Co. a Round's sectional roller mill and a detached mill, both with Stevens corrugations.

Chas. Huber, of St. Louis, Mo., has taken an order from Dick Bros. Milling Co., Quincy, Ill., for a double Stevens roller mill, furnished by the Noye Mfg. Co.

N. Weaver of Edmond, Kas, has recently added a purifier and other furnishings to his mill, ordered from the Great Western Mfg. Co., of Leavenworth.

Jno. B. Isett, of Spruce Creek, Pa., has ordered of the Jno. T. Noye Mfg. Co. a Stevens roller mill and two detached mills, all with Stevens corrugations.

E. W. Pride, of Neenah, Wis., has deposited an order with the Jno. T. Noye Mfg. Co., of Buffalo, for seven Stevens roller mills for Stewart Bros., Seymour, Wis.

Cyrus Stiles, of Monroe, Mich., has lodged an order with the Jno. T. Noye Mfg. Co., Buffalo, for a 4-break Round's sectional roller mill with Stevens corrugations.

H. S. Phillips & Co., Lebanon, Ky., are remodeling their mill to the roller system and have filed an order with E. P. Allis & Co. for fourteen pairs of Allis-Gray rolls.

J. Klingensmith, Kittanning, Pa., is remodeling his mill and has placed his order with Edw. P. Allis & Co., Milwaukee, Wis., for six pairs of Allis-Gray rolls.

Wm. T. Reynolds, Bellefonte, Pa., has ordered of the John T. Noye Mfg. Co. a Round's sectional roller mill and two detached mills, with Stevens corrugations.

The Kansas Central R. R. Elevator Co., of Leavenworth, Kas., are increasing their elevator capacity, getting machinery from the Great Western Mfg. Co., of that city.

At Dalton, Wayne county, O., a new roller mill is being built by the Dalton Roller Mill Co. The Noye Mfg. Co., of Buffalo, will furnish twelve pairs of Stevens rolls for the same.

Bollkol Bros., of Brussels, Deer county, Wis., are remodeling their mill and will employ in so doing, two of the latest pattern of Stevens roller mills, made by the Noye Mfg. Co.

Hall & Co., of Westfield, N. Y., have filed an order with the Jno. T. Noye Mfg. Co., of Buffalo, for a Round's sectional roller mill and a detached mill, both with Stevens corrugations.

J. M. Graham, of St. Joe, Mo., is adding 4 reels, a purifier, an Advance brush, a bran duster, 5 sets of rolls, a centrifugal reel, etc, procured of the Great Western Mfg. Co, of Leavenworth, Kas.

B. F. Gump, of Chicago, Ill., agent for the Stevens rolls, has ordered from the Noye Mfg. Co., for Froelich & Sandman, Barrington, Ill., a 4-break Round's sectional roller mill with Stevens corrugations.

Chas. Huber, of St. Louis, Mo., reports business unusually good. He has recently ordered for Wm. R. Wilkinson, Wittenberg, Perry county, Mo., a Stevens roller mill to be furnished by the Noye Mfg. Co.

J. C. Dixon & Son, Port Byron, N. Y., have "tumbled" to the Round's roller mill boom and will put in one at once. Two additional detached mills will also be used. They are furnished by the Noye Mfg. Co.

Cyrus Hoffa, of Lewisburg, Pa., has entered into a contract with the Jno. T. Noye Mfg. Co., of Buffalo, N. Y., for a complete roller mill to be built in that place. Eighteen pairs of Stevens rolls will be used.

S. F. Johnson, of Milford, Neb., whose mill was recently burned to the ground, has contracted with the Noye Mfg. Co., of Buffalo, for an outfit for a complete roller mill. Fourteen pairs of Stevens rolls will be used.

F. R. Fletcher, of Decorah, Ia., who has been sick for some time, is again around and at work. He has recently placed an order with The Noye Mfg. Co., of Buffalo, for a Stevens roller mill for J. D. Williams, Lime Springs, Iowa.

Jno. Reiderer, of Higginsville, Mo., whose mill was built last season by the Great Western Mfg. Co., of Leavenworth Kas., has been obliged, from press of business, to add two additional 4 reel bolting chests, furnished by the same firm.

B. Robinson, of Union Springs, N. Y., has instructed the Noye Mfg. Co., of Buffalo, to ship him a Round's sectional roller mill, with Stevens corrugations. The mill will be of the new pattern—two pairs of rolls, making four breaks, with five foot scalpers—all in one frame.

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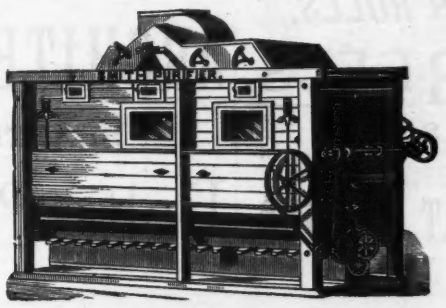

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Light Running.

ADAPTED TO ALL SYSTEMS OF MILLING.

Fifteen Sizes, Suitable for Mills of all Capacities.

Single, Double and Aspirator Machines.

In the U.S. alone More than **SEVEN THOUSAND** Are Now in Operation.

SPECIAL NOTICE. *We guarantee every owner of a* ***GEO. T. SMITH MIDDLINGS PURIFIER*** *absolute immunity from loss by suits for infringement.*

The Proceedings of the Millers' National Association

at their Cleveland meeting, held Jan. 31, disclosed the fact that the manufacturers and purchasers of almost every Purifier now offered to Millers are liable to claims for royalty. To secure our patrons against damage from this source we have, at great cost, procured of the Consolidated Middlings Purifier Co. license under all their patents on Purifiers, more than eighty in number. Our license to use the traveling brush and graded air current (without which a successful purifier can not be built) is exclusive. The importance of these facts to purchasers of purifiers cannot be over estimated.

We are giving greater attention than ever before to the mechanical details and material used in the construction of our machines, having substituted ***STEEL SHAFTING*** *for iron, and adopted* ***HARD WOOD*** *for frames; but notwithstanding the immense outlay incurred in securing protection under all existing patents, and the cost of constant improvements,* ***OUR PRICES REMAIN UNCHANGED.***

Geo. T. Smith Middlings Purifier Co., Jackson, Mich.

PRAY MFG. COMPANY

MINNEAPOLIS, MINNESOTA.

Gradual Reduction Roller Mills

COMPLETE,

CORRUGATED AND SMOOTH ROLLS,

CENTRIFUGAL REELS,

Caldwell Coveyor Kept in Stock.

ALL KINDS OF

MACHINES FOR DRESSING WHEAT & FLOUR.

STEAM AND WATER PUMPS,

For City Supply and Fire Protection.

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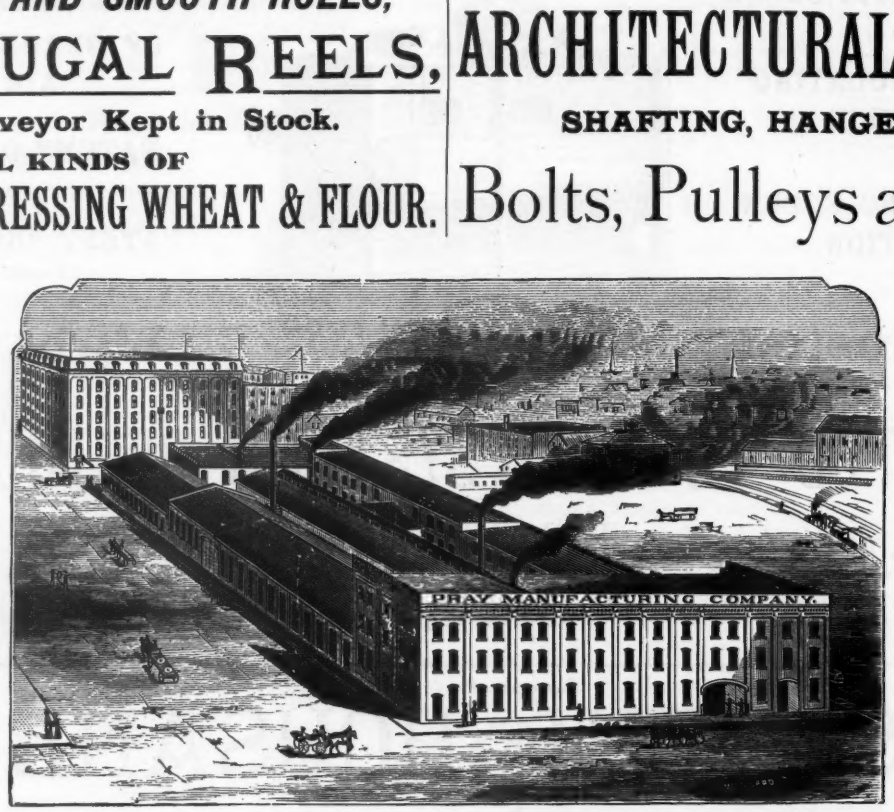
Hoffeld's Celebrated Leather Belt. Solid Woven Cotton Belt.



Jack Screws. Wagon Lifters. Rolls-Re-Corrugated. Rolls Re-Dressed.

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The Old Reliable Dufour & Company's Bolting Cloth,

The Only Genuine Article in the Market.

PLANS, SPECIFICATIONS AND PRICES, FOR FLOUR AND SAW MILLS, THAT CHALLENGE COMPETITION, FURNISHED ON APPLICATION.

Our Plans are Invariably Adopted when Placed in Competition with Others.

THE GEO. T. SMITH MIDDLINGS PURIFIER.

Write for Descriptive Circular and Price Lists to Northwestern Agents, with

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PRAY MANUFACTURING CO.

The Milling World's Original Matter.

For some time past we have noticed that technical matter from some of our best contributors was being lifted from these columns into those of the *Milling World*, where it appeared entirely without credit, and under names commonly used by that paper over matter prepared by its editor. Knowing the entire lack of technical knowledge on the part of the conductors of that periodical, we were at first disposed to say nothing about this system of abstraction, thinking that an improvement of the quality of its contents was worth some little sacrifice on the part of anyone truly interested in the diffusion of reliable information regarding the art of milling. But we have become convinced that we are furnishing more than our share of the rehashed feast weekly set forth by the *World*, and a feeling of annoyance has succeeded one of good natured toleration. We present herewith a few examples of the "unconscious assimilation" which is considered equivalent to originality by our Buffalo contemporary, and submit to our readers the justice of our complaint.

"That part of the machinery which is connected with cleaning the bran should form, practically, a mill by itself. It should have no connection with the higher grade products in the making of the flour, though it may have in the subsequent mixtures."—*Milling World, May 31.*

Rough Notes, No. 9.

"That part of the machinery which relates to the cleaning of bran, should be a mill in itself, having no connection with the higher grade products in the making of flour, though it may have in the final mixtures."

"Millers should remember that while a manufacturer can guarantee a machine, he cannot guarantee the ability of the men who will have to handle it."—*Milling World, May 31.*

Rough Notes, No. 5.

"Under such circumstances, if a manufacturer of machinery guarantees performance, he guarantees ability of the miller and every man in the mill. He is at the mercy of many people in the mill, not only as to ability, but as to integrity or industry."

"Speaking of guarantees, doesn't it look as though the guarantee business was a little overdone? When a machine has been tested in a hundred mills, giving universal satisfaction, it looks to me as though the miller 'gave himself away' by insisting upon a guarantee for himself. It looks very much as though he distrusted his own ability, for if he had confidence in himself he would reason like this: 'Many other millers have operated this machine with good results, so of course I can, too."—*Milling World, May 31.*

Rough Notes, No. 5.

"Nearly every one who buys a piece of special milling machinery requires a guarantee of the performance of that machine. Purifiers cleaning machinery, smutters, rolls, and much besides are sold on thirty days' trial, which amounts to the same thing. Now, if every machine was an experiment, there would be some justice or reason in requiring a guarantee or buying on trial. Purifiers which have been successfully operated for many years in mills are still sold in this way, as are other special machines. After a reasonable number of trials with varying conditions, a trial is not necessary or should not be expected with every purchase or sale. After sufficient trials have been made and the machine proved all right, if the miller requires a guarantee or a separate trial for himself it shows very clearly that he has no confidence in his own ability, *for if the machine is operating in a dozen, fifty, or a hundred mills and doing its work well, why should he expect a guarantee for what has already been proved?*

"A change in the size of wheat makes quite a difference in the operation of a mill. For example, if it has been running on large wheat, smaller wheat of the same quality would cause a considerable increase in the feed and make the grinding relatively higher. This in turn would have a marked effect on the separations."—*Milling World, May 31.*

Rough Notes, No. 2.

"The size of the wheat exerts a marked influence on the operation of the mill. A change from large to small wheat of the same quality and variety as often happens will largely increase the feed on the mill and give relatively higher grinding, which will exert a marked influence on the separations."

"Why is it that flour looks whiter than the middlings from which it was made? Not on account of the removal of any impurities, because the same difference may be observed if you look at it just before and just after passing through the rolls, before any bolting has been done. The explanation is an easy one—simply on account of the greater size of the individual granules of middlings. Each casts a larger and heavier shadow than a particle of flour, and therefore the whole appears darker."—*Milling World, May 31.*

Rough Notes, No. 5.

"Or, again, the flour from middlings shows whiter than the middlings themselves, notwithstanding the fact that it may not have been bolted. Say one was taken before going through the roll and the other after. It is a mere difference of size and not of composition. The largest particles cast the heaviest shadows and consequently show the darkest."

"The granules of a large grained flour cast shadows one upon the other in such a way as to make the whole appear darker than when the granules are small and the shadows less. To explain this, a gravel bed looks lighter than a pile of boulders of the same geological formation."

Rough Notes, No. 2.

"Any one who knows anything about the sale of flour knows that the flour made by a miller who has the reputation of making a uniform grade of flour as to quality, can command a price based on this uniformity as well as on its actual value. A flour may not be exactly the best flour which goes to market, yet it may command the best price, or a price above that of other flours of similar but uncertain quality."

"Uniformity is a merit which will make itself apparent in the prices obtained for the products of a mill."—*Milling World, May 31.*

"Soft wheat requires more and coarser cloth than hard.—*Milling World, May 31.*

Rough Notes No. 2.

"Soft wheat will require more and coarser cloth than hard wheat. Soft wheat may have larger granules than hard wheat and yet not be so sharp in feeling."

"Hungarian mills carry the grading of middlings to a much finer point than is practicable in the automatic mills of this country. This is rendered possible by the large extent to which hand labor is employed in handling the stock, making it feasible to employ a single machine on several grades of material. The sieve cloths of the purifiers are made interchangeable so that one machine may be used to purify any number of grades of middlings, simply by changing cloths."—*Milling World, May 31.*

Rough Notes No. 12.

"The methods described will show that a very large number of operations are necessary in carrying out the scheme of Hungarian milling. It can also be seen that an absurdly large plant would be required to carry out this scheme in an automatic mill. This difficulty is obviated in their milling by the methods of handling the stock by hand, which render it possible to use one machine for various kinds of stock. One purifier may be used to purify any number of grades of middlings, by merely changing the sieve cloths, which are made interchangeable for that purpose."

"It is a big mistake to crowd the reduction rolls. A better yield of middlings and a better flour can be obtained where the roll surface is ample."—*Milling World, May 24.*

"A better yield of middlings and brighter, cleaner flour can well be obtained where the reduction capacity is ample."—*From "Wheat Breaks and Corrugations" in* NORTHWESTERN MILLER.

"I am of the opinion that millers frequently err in the direction of making the first two breaks too gentle. A slightly closer first and second break than is perhaps most customary gives the following breaks less work to do, thus increasing the quantity of the middlings and also makes a little more first break flour."

In a recent article in the NORTHWESTERN MILLER, "Breaks and Corrugations," is the following:

"A good rule—one at least which I have always found to work well—is to set the first pair of rolls so as just to break the smaller wheat kernels, and the second as close as they can be without making enough flour to show plainly."—*Milling World.*

"I believe that many millers do not know how small a proportion of flour they are making on the first two breaks."

"My guide in this is to set the first so that it will split the smaller grains of wheat and the second as close as possible so not to show flour plainly."

"Reduction rolls should not be speeded faster than 225 revolutions per minute—the fast roll I am referring to, of course. I know that all will not agree with me in this assertion, yet I make it very confidently. I have tried driving them at various speeds from 225 up to 350 revolutions, and find the lower figure decidedly preferable."—*Milling World, May 24.*

"Reduction rolls should never run faster than 225 revolutions per minute."—*From "Wheat Breaks and Corrugations" in* NORTHWESTERN MILLER.

We have given examples enough to show that the class of talent employed in the preparation of the *Milling World's* contents. Such talent as in every day life finds an outlet in occupation which the law looks upon with severity. We have not done with the subject yet and shall in a future number show how other contributors have been levied on. Such conduct does not need to be characterized. Sensible and honest men can draw their own conclusions.

The Merimac flouring mill at Merimac Station, about eighteen miles from St. Louis, on the Missouri Pacific railway, was burned on the 9th. It was owned by H. B. Eggers, of St. Louis. Loss, $30,000; insured for $21,500. The mill, which was a frame building, had been recently enlarged and improved.

Geo. King, proprietor of an elevator at Oakfield, Wis., was severely injured on the 12th inst., by a runaway accident. Several ribs were broken by a kick, and he sustained internal injuries of a nature to cause solicitude for his recovery.

"Perfection"

HIGHEST TEST, 85% LOWEST, 82%

This water wheel is now admitted by the best mill owners to be

THE MOST PERFECT IN THE MARKET.

MARK! IT NEEDS NO PENSTOCK

And thereby saves its cost two times over, besides having it where it can be seen and got at.

The best and largest and richest mills have adopted it. 100 wheels sold in 1881, 200 sold in 1882, 400 will be sold in 1883. Just think of it, 300 wheels in two summers. It must be a good one to sell so fast. Send for elegant new book.

C. RIDGWAY & SON, Coatesville, Penn.

CHICAGO SCALE CO.

2 TON WAGON SCALE, $40. 2 TON, $50.
4 Ton $60, Beam Box Included.
240 lb. FARMER'S SCALE, $5.
The "Little Detective," ¼ oz. to 25 lb. $3.
300 OTHER SIZES. Reduced PRICE LIST FREE.

FORGES, TOOLS, &c.

BEST FORGE MADE FOR LIGHT WORK, $10.
40 lb. Anvil and Kit of Tools, $10.
Farmers save time and money doing odd jobs.
Blowers, Anvils, Vices & Other Articles AT LOWEST PRICES, WHOLESALE & RETAIL.

CLARK'S RUBBER WHEELS.

THIS WHEEL is unrivaled in the world for durability, simplicity and cheapness. Adapted for Warehouse and Platform Trucks, Scales, Heavy Castors and all purposes for which wheels are used. Circulars and Price List free. GEO. P. CLARK, Windsor Locks, Conn.

JOHN C. HIGGINS,

Manufacturer and dresser of

MILL PICKS

168 W. KINZIES STREET

CHICAGO.

Picks will be sent on 30 or 60 days' trial, to any responsible miller in the United States or Canada, and if not superior in every respect to any other pick made in this or any other country, there will be no charge, and I will pay all express charges to and from Chicago. All my picks are made of a special steel, which is ***manufactured expressly for me*** at Sheffield, England. My customers can thus be assured of a good article, and share with me the profits of direct importation. References furnished from every state and territory in the United States and Canada. Send for circular and price list.

EDWARD KENNEDY

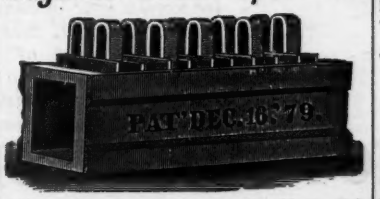
Calls the attention of mill owners and mill men generally to his unrivalled mode of manufacturing and dressing

MILL PICKS

After long experience in the business ***Can guarantee perfect satisfaction.*** A large assortment of picks on hand. All orders promptly attended to.

510 2nd St. South, MINNEAPOLIS, MINN.

Magnetic Grain Separators.



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Corn-Mills and Millstones,

ALL SIZES.

THE BEST IN THE WORLD FOR TABLE MEAL!

Samples of Meal Sent on Application.

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(Please Mention this Paper.)

WELCH'S WHEAT HEATER!

WITH STEAMING ATTACHMENT.

FIRST PREMIUM

—AT—

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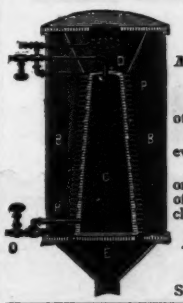

Its superiority over a others fully established.

Heats every grain of wheat evenly and thoroughly.

We guarantee satisfaction or no sale, and invite a trial of 30 days to prove our claims.

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SAVE BOILER AND FUEL!

LYE & ZIMERLE'S

IMPROVED

Anti Incrustation Compound!

For Steam Boilers is warranted to do all we claim for it—if used as per directions—viz: Stop formation of scales and gradually bring out the old; **prevent foaming** and gritty matter being carried into the cylinder to cause its cutting. It is second to none.

ALL STEAM USERS NEED IT.

Price reduced to 50 cents per gallon in barrels, half barrels and quarter barrels. Correspondence solicited and references furnished. Please give diameter and length of boiler, well or river water and kind of mineral as nearly as possible. Address,

LYE & ZIMERLE, Delphos, Ohio.

BURNHAM'S

Standard Turbine

Water Wheel.

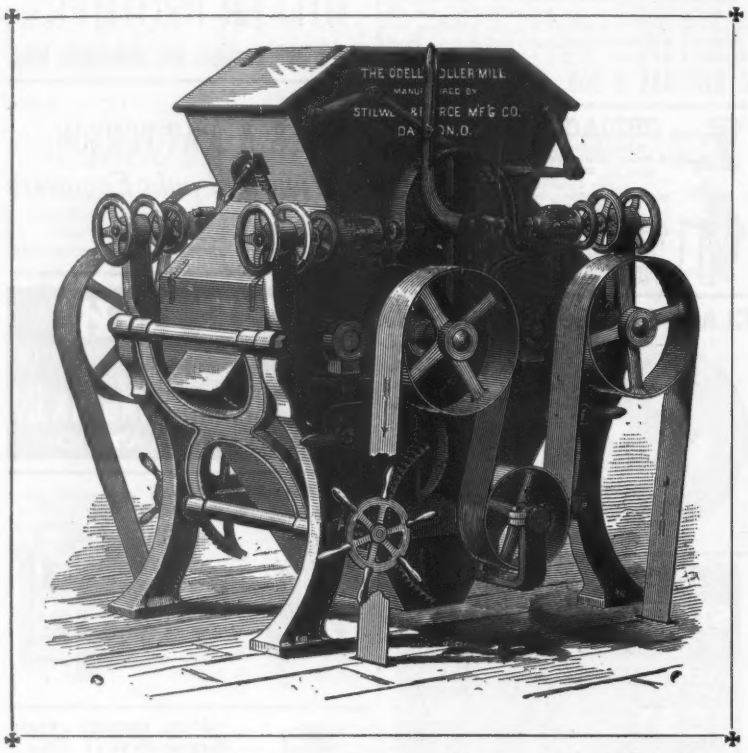
Over 2,000 sold the past eight years. New illustrated and descriptive pamphlet sent free

BURNHAM BROTHERS,

YORK, PA.

ODELL'S ROLLER MILL SYSTEM

Is now in successful operation in a large number of mills, both large and small, on hard and soft wheat, and is meeting with unparalleled success. All the mills now running on this system are doing very fine and close work, and we are in receipt of the most flattering letters from millers. References and letters of introduction to parties using the Odell Rolls and System, will be furnished on application to all who desire to investigate.



Odell's Roller Mill,

Invented and Patented by **U. H. ODELL,** the builder of several of the largest and best Gradual Reduction Flour Mills in the country.

AN ESTABLISHED SUCCESS!

We invite particular attention to the following **Points of Superiority** possessed by the Odell Roller Mill over all competitors, all of which are broadly covered by patents, **and cannot be used on any other machine:**

1. *It is driven entirely by belts, which are so arranged as to be equivalent to giving each of the four rolls a separate driving belt from the power shaft, thus obtaining a positive differential motion which cannot be had with short belts.*

2. *It is the only Roller Mill in the market which can be instantly stopped without throwing off the driving-belt, or that has adequate tightener devices for taking up the stretch of the driving-belts.*

3. *It is the only Roller Mill in which one movement of a hand-lever spreads the rolls apart and shuts off the feed at the same time. The reverse movement of this lever brings the rolls back again exactly into working position and at the same time turns on the feed.*

4. *It is the only Roller Mill in which the movable roll-bearings may be adjusted to and from the stationary roll-bearings WITHOUT DISTURBING THE TENSION-SPRING.*

5. *Our corrugation is a decided advance over all others. It produces a more even granulation, MORE MIDDLINGS OF UNIFORM SHAPE AND SIZE, AND CLEANS THE BRAN BETTER.*

We Use None But the Best Ansonia Rolls.

Our corrugation differs from all others, and produces **Less Break Flour, and Middlings of Better Quality.**

Mill owners adopting our Roller Mills will have the benefit of Mr. Odell's advice and long experience in arranging mills. Can furnish machines on short notice. For further information, apply in person or by letter to the sole manufacturers,

STILWELL & BIERCE MFG. CO., DAYTON, OHIO.

WILCOX & SCAIFE,

Successors to Wilcox, Shinkle & Co.,

General Mill Builders and Furnishers,

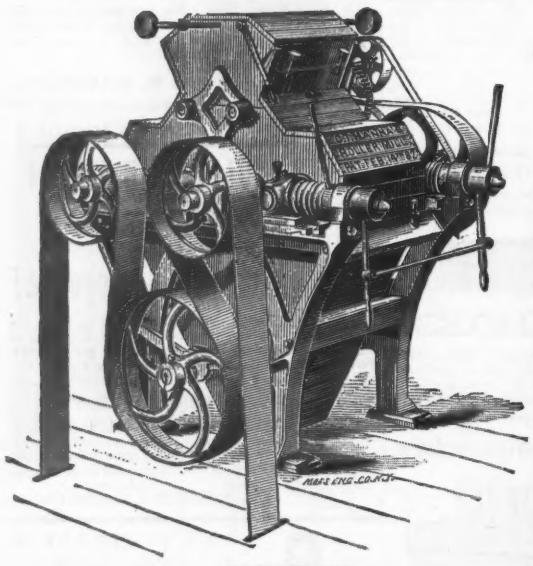
AND MANUFACTURERS OF

C. T. Hanna Roller Mills,

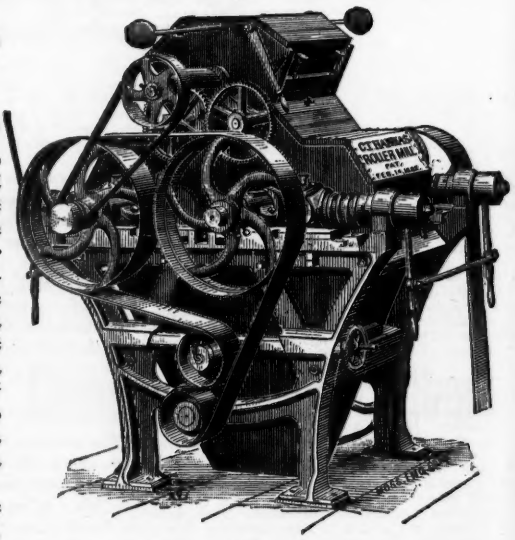
Pat. Feb. 14th, 1882. Other Patents allowed.

CORRUGATED TO SUIT EACH REDUCTION

of wheat to middlings and middlings to flour, leaving the bran broad and clean. All the horizontal adjustments are in direct line with line of contact. They are quite easily adjusted, and are positive in their action. The rolls are thrown apart by moving one lever, the reverse movement of same lever bringing them back to place of action again. They have a positive arrangement for keeping the rolls from contact with each other when running empty. Each end of roll has a separate vertical adjustment to keep them parallel with each other and in line with line of contact. They are driven by SUPERIOR belt movement, having large amount of belt surface for the amount of power to be transmitted, hence, no strain or slipping of belts. Have both positive and automatic feed.



DRIVING END.



DRIVEN END.

THEY ARE NOT SURPASSED BY ANY ROLLER MILL

Address **WILCOX & SCAIFE,**

39 Water Street, PITTSBURGH, PA.

ST. LOUIS SIFTINGS.

[SPECIAL CORRESPONDENCE.]

We cannot give a cheerful report of the situation here this week; it has been and is yet weak and slow. Operations among the mills have increased, owing to the low price of wheat, but the disposal of the product is where the pinch comes. Outside of a light demand for southern orders and local uses, there is no call for flour, and what was disposed of had to be let go at a small decline. Trades were very small, indeed, and averaged only about 2,000 barrels per day. Sales were chiefly for grades above family, fancy and extra fancy being more sought and better sustained in value than anything else. Receipts show a decrease, and the shipments are 8,000 barrels behind last week. Prices nominally the same, as the decline was only on lots where concessions were necessary in order to make a sale.

The output has been materially increased by the starting of the United States and Alton City mills. The average daily production has been about 5,000 barrels, but a good bit of the general output is being stored.

Wheat receipts for the week were quite small; yet they show a slight increase over last week. Shipments were lighter, and more went out by barge for export. No. 2 red sold very freely the early part of the week, and millers were rather free buyers. The market was dull and lower, and closed at $1.18 for above grade. Advices from spring wheat country for past few days have been tinted with bright colors, and this, no doubt, has been the cause of the drooping aspect of the market. However, the late continued severe rains, it is thought, will change the course of values.

***

The Alton City mill started up last Wednesday.

The old Franklin Avenue mill is still pegging away at a fair pace.

Noah Hunt, of Lone Jack, Mo., has purchased a Smith purifier.

The United States mill has started up again, but is running only lightly.

Harrison, Mann & Co. have added a Smith purifier and a centrifugal reel to the equipment of their mill.

The brushing up of the Cherry Street mill has been completed, but it will not be started up before the new crop arrives.

Mauntel, Borgess & Co.'s mill at St. Genevieve has just come out of the hands of the painter, looking as bright as a new dollar.

Wm. Patrick, for many years connected with the Atlantic mill, but now located in Santa Fé, was a visitor on 'change Tuesday.

Ittner Bros., who have the contract for the building of the mill of the Geo. P. Plant Milling Co., have put a large force of men at work, and have already completed the foundation wall.

Wm. Lester, an employe of the Bemis Bag Co., while adjusting a belt, accidentally fell off a high step ladder, a distance of eighteen feet, and broke his leg.

The Central Iron Works have the contracts for furnishing the iron work, shafting, pulleys, hangers, etc., for new mills at Galesburg, Mo., Quincy, Ill., and Carlisle, Mo. They are also extremely busy on a large amount of shop work.

At the Merchants' Exchange Benevolent Society picnic, to-day, there will be a foot race between the millers and railroad men. Although the railroad men are always handling fast freight, it is predicted that the millers will give them a good illustration of how to make "good time."

John Gillespie, a well known operative miller of this city, died on last Thursday, and was buried to-day. Many of Jack's friends sorrowfully followed his remains to Bellefontaine cemetery. The deceased had been a miller in this city for many years, and was universally admired for his genial qualities.

The well known Medart Patent Pulley Co. have removed to their new and extensive works at No. 1206 to 1214 North Main st. By the addition of new and improved machinery, the firm have increased their capacity to 300 pulleys per day, and the merit of their product is so well known that they have all the business they can handle.

The millers of the Anchor mill have formed a base ball nine, and are ready to accept challenges from any other club in the city. The positions appointed as follows: J. Gunn, catcher; J. O'Donnell, pitcher; C. Walsh, first base; J. Clark, second base; E. Regan, third base; T. Walsh, short stop; Adam Tiel, center field; T. Casey, right field; L. Burmester, left field. T. Walsh will be the captain.

A private dispatch from Springfield, of yesterday's date, says the East St. Louis inspection bill will not become a law by any action of the present legislature. As the legislative sessions of Illinois are biennial, nothing further can be done concerning it for two years, if, indeed, the subject ever comes up again. The bill, which, at one time seemed to be on the road to jeopardize our grain trade, was passed by the committee appointed by the legislature, after positive assurance had been given to our grain representatives, appointed to attend the matter, that it would not be at all favored. The announcement of its passage in the house a few days ago, created considerable stir among grain men here.

Our millers and flour merchants, concurring with their northern brethren, do not sit down and bewail the dead market, etc., but like them, will have fun. Hardly have the aches from the exertions in getting up their annual excursion passed away, than they put their heads together, and behold! a base-ball match is arranged. After a week's preliminaries, consisting of hiring the Arsenal band, issuing some 4,000 invitations, and making contracts with our leading surgeons to repair damages, the grand match took place yesterday, and will go down to history as one of the most fierce and bitter struggles ever fought on earth. Although the day was a most inauspicious one, a crowd of 2,000 gathered on the grounds long before the "desperadoes" arrived, which they did in due time in soft cushioned vehicles, built for "this trip only." The opposing factions were the "longs" and the "shorts," and while the longs were famous for their muffing capacity, the shorts showed up with their lofty tumbling abilities. The game was called at 4:15 sharp, and Comiskey Stabie grasped the willow (Mr. Stabie is generally regarded as a dignified flour inspector) with a firm determination in his eye to knock the ball through the Washburn A mill at Minneapolis. Mr. S. toed the plate, the ball came and the striker struck, and the ball promptly landed in the catcher's hands, the player retiring on a foul. The next player assumed position, and with a whiz of the bat which would have done credit to a backwoodsman, he sent the ball to right field. Then was displayed the activity of our flour manipulators. In his eagerness to sustain the reputation of his side, every player forgetful of his position, rushed for the ball, and lo, and behold, the entire club was congregated in the far corner, while the latter safely made a home run. This was only a fair example of the general achievements of the contest, and more fun to the square inch was never experienced by mortal man. Every player displayed his peculiar talent. Gleason Kehlor showed timidity in picking up the ball while traveling along the ground; O'Rourke Kirk (Sec'y. M. M. Assn.), aptness in sitting down between bases; Dearley W. Kant, firmness in letting the ball get through his hands because it hurt; Nicol Bauer, agility in somersaulting every time he ran after a fly ball, and Wolf Chenot, cuteness in eating grass while running for the home base. This short description is but a suggestion of the movements of this wonderful game. It is stated that over 17 persons were overcome by laughter, whilst 32 have disappeared, despairing because their early education in base ball was neglected. After steady work of two hours and twenty-nine minutes, owing to the fact that the fielders were worn out and the catcher's fingers were raw, the game was called by the consent of all parties at the end of the seventh inning, the score reading 23 to 20 in favor of the shorts. The work of recording the errors proved too heavy for the scorers, and they abandoned it, and the remarkable achievements in that particular line will never be known. Faint rumors are afloat to-day that a movement is on foot to have another match, but as such joys are too great to be bestowed twice, the rumor is not credited. Latest accounts report the wounded doing well, and satisfactory arrangements made for furnishing artificial fingers and noses to the scientific ones.

CARRERAS.

St. Louis, June 16.

MARKETS.

MINNEAPOLIS, June 19.

A fair amount of business has been done on 'change the past week, but wheat ruled weak and closed at a decline of 1 to 1¼ cents, on the week. Bran and shorts suffered a decline at the opening, and showed no life throughout, though fine shorts and sacked bran are very scarce and in demand. Corn opened strong, but closed very weak. Oats are weak with no demand. Quotations:

FLOUR—Patents, $6.75@7; straights, $5.75@6.10; clears, $5.25@5.50, low grades, $2.25@3.50. The best Minnesota patents are quoted at $7@7.50 in New York and at $6.75@7.25 in Chicago.

BRAN—$6@6.12½, sacked.

SHORTS—$8.25@8.75 for fine; coarse, $7.75@8.25.

MIXED FEED—$18.00@20.50, according to quality.

CORN MEAL—Coarse about $1 below the price of mixed feed.

WHEAT.—No. 1 hard spot, $1.12½; seller July, $1.13½; seller the year, $1.10; No. 2 hard, $1.07; No. 1 northern, $1.07; No. 2 northern, $1.04; No. 3 northern, $1. Millers' Association has lowered its prices as follows: No. 1 hard, $1.11; No. 2 hard, $1.06. No. 1 regular, $1.04; No. 2 regular, $1.01; No. 3 regular, 96¢.

CORN.—Nominally 50¢ for No. 2 spot; seller July, 51¢; condemned, 47@49¢ by sample.

OATS.—38¢ for No. 2 mixed; white, 40¢; rejected, 36@37¢ by sample.

The grist mill of Gustavus & Smith, at Oshkosh, Wis., burned Friday afternoon. A large quantity of flour and millstuff was destroyed besides 6,500 bushels of wheat. The loss is at least $25,000, and the insurance is $10,500 or over.

SPECIAL NOTICES.

OPEN FOR ENGAGEMENT.

A first class miller, sober, industrious, reliable and up to the times. Best of references. Correspondence solicited. Address P. O. Box 27, Kossuth, Ia.

A RARE CHANCE.

A water power custom flour and saw mill, excellently located, for sale at a bargain. Address, N. W., care of NORTHWESTERN MILLER, Minneapolis, Minn.

FOR SALE.

Second hand engine for sale at a bargain. Cylinder 14x24, in excellent condition. Can deliver it immediately. For further information address BIRD, BRIDGE & Co., Warren, Jo Daviess Co., Ill.

FOR SALE

At half price of new, two of Jonathan Mills' degerminators; run only about 5 months, all perfect in every respect. Reason for selling, prefer rolls in place of them. UNION MILL CO., Waterloo, Ia.

FOR SALE.

Five run of four foot buhrs, and one extra runner, extra selected stock, dressed and in good running order with spindles, lighter, screws etc.; one 30½ inch Leffel turbine in perfect order; pair of smooth rolls.

Address VICTOR, (this office.)

MILL WANTED.

Three or four run mill in the northwest (Minnesota or Dakota preferred) in good order, and with a good steady power. Send full particulars and lowest cash price, to M. H. W., office of the NORTHWESTERN MILLER, Minneapolis.

DIAMOND BUHR DRESSERS.

For Facing, Cracking and Furrow-Dressing. Used in best mills in the United States. Selected diamonds for the machines furnished. Send for reduced price list. GRISCOM & Co. & MCFEELY, Manufacturerers and patentees, 110 S. 4th Street, Philadelphia, Pa.

FOR SALE.

Cheap for cash, one No. 2. Richmond Empire conical bran duster. Capacity—offal from 150 barrels. Run about four months and in perfect condition. Taken out to be replaced with a larger machine of same make. Address WALSH, DEROO & Co., Holland, Mich.

ENGINE FOR SALE.

A 10x30 Reynolds-Corliss engine, built by E. P. Allis & Co., steam pump, 40 H. P. flue boiler with boiler front, grates, etc., all complete. Has been been used but a short time, and everything is in first class order. Will sell cheap for cash. HASHOW, MAISH & DAVIS, Variety Iron Works, Minneapolis, Minn.

FOR SALE.

The Richfield mill, five miles south of Minneapolis, on Lyndale ave. Will sell whole or half interest, taking city property in part payment. Capacity of mill 60 to 70 bbls. Good water power; also pair 4-foot buhrs in good shape for sale. J. M. BAIRD & Co., Box 688, Minneapolis, Minn.

WANTED.

Young man two and one-half years as correspondent and amanuensis with one of the largest milling companies in this country, is open for engagement in a like capacity. Can give best references. Fully conversant with the export trade, and general routine office work. Address A. B., this office.

SECOND HAND MACHINERY FOR SALE.

Having changed our mill to the roller system, we have a lot of machinery (second hand) for sale cheap. Parties desirous of getting good bargains on some buhrs, separators, and smutters can obtain further information by addressing Wahpeton Mill and Ele. Co., Whapeton, Dak.

FOR SALE.

A wind mill, tower 75 feet high, well built, together with all of the iron and nearly all of the woodwork belonging to a wind wheel 60 feet in diameter, shafting, belting, smutter, and nearly everything complete for a two-run flouring mill, is offered at a great bargain. For any one in need of this machinery it is a perfect bonanza. Address for particulars, ED. A. PASADIS, Plainview, Minn.

FOR SALE.

Custom and feed mill. The undersigned offers for sale the undivided half interest in the custom and feed mill at South Boardman, Kalkaska county, Mich., on the Grand Rapids & Indiana railroad. The mill is doing a large business in custom work, and the feed trade is unexcelled. Mill is nearly new and in good codition. Address, W. H. LEACH, South Boardman, Mich.

HINTS ON MILL BUILDING,

By R. James Abernathy. The most modern book on milling. Three hundred octavo pages, fully illustrated, and containing full accounts of modern milling methods, together with many valuable tables and much useful information for mill owners, millers and millwrights. A book everyone interested in milling should have. Price $4. Sent postpaid on receipt of price, with one year's subscription to the NORTHWESTERN MILLER, $4. Address,

NORTHWESTERN MILLER,
Minneapolis, Minn.

MILLING INVESTMENT WHICH WILL PAY.

A man whose extensive experience in milling as a practical miller and more recent experience as a mill planner and builder entitle him to the claim of being an expert in modern milling, desires to correspond with millers who have capital and location, with a view to partnership. None but first class parties who want first class results need answer. Would prefer to build new mill, so as to take full advantage of the latest developments. Please address for all particulars, No. 33, care NORTHWESTERN MILLER.

BOOKS WANTED.

If you have any scientific, technical, reference or standard books, newspaper or magazine files, etc., suitable for a large general library which you want to dispose of for cash at a low price, send full description and price to the undersigned and you will receive a reply by return of mail. Old and rare, or modern engravings of merit are also wanted on the same terms. Address

LIBRARIAN,
Care NORTHWESTERN MILLER,
Minneapolis, Minn.

WANTED.

Steady situation by a practical miller—sober, industrious and reliable. Had 25 years' experience with millstones and rollers. Am competent to build, remodel and run any kind of flouring mill. Have built the mill I am working at present, and made it pay the outlay. Gilt-edged references from present employers. Good reason for wanting to change. Would not object to go with a millfurnishing house as traveling man. A good mill in Iowa preferred. Address "SLATER," NORTHWESTERN MILLER, Minneapolis, Minn.

FOR SALE.

Parties intending to build a mill read and think this over The entire machinery of an 80 barrel mill, as good as new, consisting of engine, 14x24 boiler, tubular 65 horse-power, 2 steam pumps, 2 power pumps, 3 runs of stones with all their gearing (bevel), 2 sets of rolls, 2 packers, 1 diamond dresser, 6 reels, 1 double Smith purifier, largest size made, 1 French purifier, 2 smutters, one brush scourer, rolling screen and magnets with two sets of scales and 24 picks, all gearing, shafting, and belting, large 200 bus. per hour corn sheller, and one small corn sheller. Everything in perfect order, and will be taken down carefully and put on cars for $3,000.

Address No. 9, care NORTHWESTERN MILLER.

$10,000 WORTH OF PROPERTY FOR $5,500.

Flour, grist, and saw mill, situated on the Meherrin river, 10 miles from Keysville depot, R. & D. railroad, Va. Since 1873 the proprietor has spent $7,000 on improvements, new machinery, etc., and there is enough of machinery not in use to build another mill, including a pair of 5 foot wheat buhrs. There is a miller's house, store house, wheelwright's shop, etc., besides 50 acres of fine river land. The proprietor being now engaged in a different business in the city of Petersburg cannot give the mill his attention, hence would make a large sacrifice to sell. Total value, $10,000. Part of the purchase money could remain at interest on security of the property, and liberal terms given. Address D. BUCHANAN, Goldsmith, Petersburg, Va.

NEW MILL FOR RENT.

A new four-run steam flouring mill for rent at low figures at Conway, Ia. No other mill within ten miles. The mill is complete from top to bottom. Basement, three stories and attic; 14x20 engine; boiler 54 inches by 14 feet. Iron husk frame, belt drive, two buhrs on wheat, one on middlings and one on corn. One smooth roll on cut-off from purifier, and a corrugated roll on bran. No. 3 smut purifier with dust catcher. Six 18-foot reels with double conveyors. Plenty of cleaners and exhaust fans. Flour packer. Four sets of scales. In short, the most complete and finest finished four-run mill in Iowa. None but a good miller, with means, need apply. Address C. A. Donnell & Co., Conway, Ia.

NATIONAL MILLING EXCHANGE.

We are making an exclusive business of the sale and exchange of mill property, and so far as we know are the only firm in the country giving entire time to this matter. Persistent, judicious advertising and vigilance, coupled with experience, give us facilities for finding buyers unequaled by any concern in the country. We offer the largest number of good chances in all the western states and Canadas, so that buyers looking for locations should consult us. Send for latest list of steam and water power mills for sale and exchange all over the west.

J. M. MOORE, & CO.,
213 North Eighth Street, St. Louis.

TRADE TALK.

This column is open to all regular subscribers to the Northwestern Miller, and all questions will be answered by competent practical millers at the publisher's expense. Unless signed by the editor, all matter published is given as the expression of individual opinion, for which the Northwestern Miller assumes no responsibility. Subscribers asking questions or criticising matter appearing here or elsewhere in the Northwestern Miller, may use initials or such signatures as they may select, but every letter must be accompanied by the full name of the writer, as only bona fide communications will be printed. The fullest criticism of anything and everything appearing in the paper, in this department or elsewhere, is invited.

"Apprentice Boy," Minneapolis. "How is the horse power of a locomotive, steamer or stationary engine figured?" The vagueness of the phrase "horse power," especially in the case of steamships, leaves it undecided whether nominal or indicated horse power is required. This destinction is important since the indicated power of engines ranges from one to five times the nominal power and sometimes higher. The nominal horse power is deduced from dimensions, the indicated horse power depends directly on the pressure of steam and the velocity of the piston. Rankine gives one rule for condensing, and one for non-condensing engines together with the rule adopted by the British Admiralty, and applicable to screw propelling engines only. The rule for non-condensing engines is to multiply the cube root of the stroke in feet, by the square of the diameter of the cylinder in inches, and divide by twenty. But the nominal horse power thus obtained, is a quantity without much practical significance, since it does not include as a factor the actual effective pressure of steam. On the other hand, the actual power of an engine in operation may be calculated as follows: Find the mean effective pressure of steam behind the piston. This is usually about eight-tenths of the pressure calculated from the indicator-diagram. Multiply this measure expressed in pounds per square inch, by the area of the piston expressed in square inches. The result is the pressure on the piston. This multiplied by the number of feet traveled by the piston per minute, gives the number of foot pounds per minute developed, and as 33,000 foot pounds per minute constitute a horse power, the actual horse power can be ascertained by using that figure as a divisor.

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"Grocer," —— Wis. "I have a lot of musty flour left on my hands, and would like to know how I can fix it up so I can sell it. I want to get my money out of it or close it out in some way." As no sample was sent, we can not tell how bad the flour is damaged. We do not believe on principle in adding any foreign substance to flour, and would not advise anyone to, but if our correspondent wishes to experiment we submit the following opinion obtained from a well informed and reliable man: "Musty flour can be restored and improved by adding three parts of carbonate of magnesia to seven hundred and sixty parts of flour, mixing thoroughly. Carbonate of magnesia cannot be called an adulterant. It has been specially recommended by Professor Davy, on the ground that it improves the color of new and inferior flour, and increases the yield. Dr. Hassell, however, criticises this by saying that, 'neither of these results, as far as the public is concerned, are in the least desirable. The increased yield simply means more water.' Even so, if it is an improvement, it should be used by all means."

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M. D. L. Howard, Quincy, Minn. "I have read a good deal in the NORTHWESTERN MILLER on the subject of rolls vs. buhrs by different millers and mill owners. The point is, what gives the best results, roller milling or buhr milling? I am not prejudiced against the rolls, and I have a friendly feeling toward the roller milling. And farthermore I am not prejudiced against the buhrs. I am making a grade of straight flour out of mixed wheat, equal parts of each, test 55 and 56 pounds to the bushel; use buhrs, smooth surface, rubbed down to perfect face with McDeal's diamond rub stone. I havn't used a pick on the skirts of the buhrs for 14 months. The flour sells well and we do not have any complaint, and it sells readily and is in good demand. The flour makes a good white loaf of bread, moist and flakey. I will send you a small sample of our straight flour on which please pass your opinion whether good, bad, or indifferent. Give the d——l his due."

The flour sent is a good article, excellently ground, and wets up well and strong, so we cannot doubt our correspondent's statement as to its making a good loaf of bread, but it is somewhat specky, and for color does not compare well with similar grades of roller flour. In fact it may be criticised briefly by saying what applies equally well to all samples of all stone made flour, the grinding is better than the purifying. This cannot be helped in the use of all buhrs, for their product has not the advantage of slight reductions and numerous removals of the released dirt and bran particles. We do not often see a better sample of granulation and bolting than Mr. Howard's. Unless we are much mistaken he is an excellent miller, and is doing all that it is possible to do with his equipment. As long as his trade does not demand a whiter flour, and is content with its strength and good baking qualities, we should hesitate about advising him to change his system. "Let well enough alone" is a good motto in the milling business as in in any other.

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B. W., —— Minn. "I have read your article on 'Fermentation and Self-Raising Flour,' and would like to know if the self-raising method has any advantages over fermented bread?" It is claimed by those who manufacture self-raising flour, that time is saved in preparing it for the oven, and its results are certain in any climate as the difference in temperature does not affect it; while the fermenting process is essentially dependent on temperature, and cannot be used with much success in very hot or cold climates, and with every facility occupies several hours, and is then very uncertain in its results. A little water with the means of making a fire being all that is requisite in any situation to secure an excellent loaf of bread, biscuit, or griddle cake, which is very healthy and valuable to travelers in this respect. Besides, it is claimed, and with great show of reason, that bread made from self-raising flour will keep much longer than bread made from yeast, and will not mould nor become sour, and may be eaten while fresh, without detriment, and beside this the claim is put forward and sustained by Professor Horsford that it gives sixteen per cent more bread than flour raised with yeast, of fine flavor, more digestible and nutritious, and making thirty-two more pounds of bread to the barrel. The gluten, saccharine, and other elements of nutrition in flour, are wasted or destroyed during fermentation to the extent of seven per cent, or more, while they are preserved in all their strength in bread made from self-raising flour. These are some of the advantages claimed.

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"Jack S.," Minneapolis. "The present dull time in milling in this city reminds me of a Joe Millerism that was perpetrated by one of our most prominent "boss" millers, who was better posted in roller milling than the English language. The water was very low at that time; so much so that the mill was shut down more than half time. As a consequence some were merry and some were sad. Among the latter was our friend W——, of the ——. Having a brand new mill on his hands and a new system, and feeling that the eyes of all Yankeedom were on him, he was greatly worked up about shutting down every few hours. Every one meeting him would inquire 'well W., how many barrels of flour are you going to make to-day?' The boss packer, seeing him down at the rack one morning, rake in hand, addressed him as usual: 'Well W., how much flour are you going to make to-day?' Turning around and exhibiting a most woe-be-gone countenance, he answered, 'Go away, I do not want to talk funny to-day.'"

Three parties claiming to be commission merchants on the Chicago board of trade, have filed a petition in the circuit court of that city against the Western Union Telegraph Co., to prevent the telegraphic disconnection of the firm's branch office at Detroit, Mich., with its main office here. Judge Tuley issued a temporary injunction.

The North Wisconsin Lumber Co. has recently completed a large saw mill at Heywood, Wis., in the building of which several mill men have been prominently identified. The mill cost $100,000, and is a model one in construction and equipment. E. H. Connor was the millwright, and the manner in which he carried out his work has added new laurels to his record. The mill proper is 70x160, with an ell for shingle manufacture 50x50, and an addition 16x40 for filing room. The power is furnished by three American water wheels. Two of them are attached to one shaft and furnish motion to drive the rotaries and gangs. The other wheel drives the trimmers, edgers, and transfers, and shingle and lath machines. With a fourteen foot head, each wheel will furnish 365 horse power, the water coming from the pond through a flume 150 ft. long. The dam is about 350 ft. long and 16 ft. high, and no expense was spared which was necessary to make it permanent. The driving machinery was furnished by the Pray Mfg. Co., of this city, and is a job they may well be proud of. The shaft which connects the wheels with the saws is nine inches in diameter. There are two friction pulleys 8 ft. in diameter with 30 inch face, bevel paper and iron friction pulleys, and three large wood and iron bevel gears. This machinery is pronounced by good judges to be the best they have ever seen. The saws were furnished by E. P. Allis & Co., Emery & Garland and others, and are accompanied by all modern improvements.

There are few millers who have any rule for setting a belt on a quarter-twist, the general practice being to keep trying until it comes right. An ordinary straight belt must run squarely on to the pulley or at right angles with the shaft. Hence if you wish to connect with a belt two horizontal shafts, at right angles with each other, say an engine shaft near the floor, with a line attached to the ceiling, it will require a quarter turn, and the principle governing a straight belt must be observed. First ascertain the central point on the face of each pulley, at the extremity of the horizontal diameter, where the belt will leave the pulley, and set that point on the driven pulley plum over the corresponding point on the driver. This will cause the belt to run squarely on to each pulley, and it will leave at an angle, greater or less according to the size of the pulleys and their distance from each other. This rule will render the setting of a quarter twist as easy and as certain as the setting of an ordinary straight belt.

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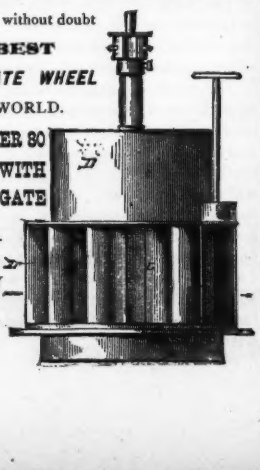
VIEWS OF MILLS, MACHINERY, ETC.
IN THE BEST STYLE
AT
REASONABLE PRICES
THE NORTHWESTERN MILLER
MINNEAPOLIS, MINN.

KEY CITY TURBINE

This Turbine is without doubt
THE BEST
PARTIAL GATE WHEEL
IN THE WORLD.
IT GIVES OVER 80 PER CENT. WITH ONE-FOURTH GATE



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MILLS & LINTON,
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Room 6, Chamber of Commerce Building, Minneapolis.
Special attention given to filling orders for choice milling Wheat and best grades of Minnesota flour.
Having had a large experience in the milling business, we feel confident that we can fill all orders satisfactorily. Careful attention given to consignments.

A. B. TAYLOR,
Wholesale Grain Dealer.
Milling orders for round or car lots of hard or soft Spring Wheat promptly filled. Careful attention given to consignments. Security Bank Building,
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FLOUR EXCLUSIVELY.
37 Water Street, New York.
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Strong Minnesota Bakers' flour a specialty. Liberal advances made on consignments. Correspondence solicited. Reference—R. Patrick & Co., Bankers, Pittsburgh, Pa.
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EXPORT FLOUR TRADE!
Chas. J. HELLIWELL & CO.
51, Chamber of Commerce Building,
MILWAUKEE, - - WISCONSIN,
(ESTABLISHED 1860.)
Mr. C. J. Helliwell, after a visit of several months to this country, has now returned to Liverpool, England, still better fitted than formerly to serve American Millers. The firm at Milwaukee will be pleased to receive samples and offers from millers, and to furnish any information in their power.

J. D. EDGE,
Millwright and Draughtsman,
Dealer in Millfurnishings, Etc.
Estimates cheerfully given on building new mills and repairing old ones. Minneapolis, Minn.

A BARGAIN!
The following machinery will be sold at a bargain: One 25-inch right hand turbine water wheel; 1 30-inch right hand turbine water wheel; 1 30-inch left hand turbine water wheel; 1 36-inch right hand turbine water wheel; 1 40-inch left hand turbine water wheel; 3 No. 5 Smith purifiers. This machinery is in excellent order and will be sold at a sacrifice. Address,
PRAY MFG. CO.,
Minneapolis, Minn.

C. A. SELEY.
CONSULTING ENGINEER.
ROOM 16, DRAKE BLOCK, ST. PAUL, MINNESOTA.
I am prepared to contract for engineering work as follows: Furnish and set up power plants, complete or in part, set up machinery, pumps, water works, etc., and take charge of repairs.
Stationary, locomotive and marine engines indicated and adjusted for highest economy and work. Will conduct fuel and engine tests; design engines and special machinery. General draughting and engineering.
If you are burning too much fuel; if you wish to increase your power without great expense; if you wish power measured for renting or experiments; in short, any item of engineering work will be promptly attended to. Work done under guarantee when desired. Correspondence solicited.

CHEAPEST STEAM PUMP IN THE WORLD!
IN EIGHT SIZES

THE UNIQUE
Boiler Feeder
STRICTLY FIRST CLASS, IN EVERY RESPECT.
SEND FOR NEW & REDUCED PRICE LIST. FREE ON APPLICATION
MANUFACTURED BY THE MILLER COMPANY, CANTON, OHIO.
Satisfaction Guaranteed or No Pay!

Lubrication—II.

BY J. VEITCH-WILSON.

With regard to the economical aspect of the question, to which I have referred, I would add that, by that expression I do not mean only the saving which may be legitimately effected by the use of a cheaper instead of a dearer lubricant, when the former will do the work of the latter, so much as the saving in power, in wear and tear of machinery, in repairs, and in fuel, which may be effected in all works; and to the greater quantity and better quality of their products, which in the case of spinning and weaving factories, may be secured by the use of suitable lubricants. I could give you instances, both in England and in Scotland, of mills in which, by judicious revision of the oiling department, a saving has been effected of 50 to 100 per cent in driving; and, financially, in oils and coal together, of many hundred pounds per annum.

So much by way of introduction. Our subject may be naturally and conveniently considered under two heads:

1. *Lubrication* under ordinary atmospheric condition, which includes the lubrication of all ordinary engines, shafting and machinery.

2. *Lubrication* at high temperatures and in contact with steam, which includes the lubrication of steam cylinders and valves, gas engines, and caloric or hot air engines.

To a great extent the same conditions apply to both classes, i. e., the conditions of the first class apply equally to the second class; while steam and heat impart some special conditions to the latter. I shall, therefore, under the first head, fully discuss all the conditions common to both classes, and I shall then shortly describe the condition peculiar to the second class; and, if time permits, I should like briefly in conclusion, to refer to the mechanical aspect of lubrication—i. e., to the method of applying the lubricant—for I am convinced that no matter how excellent that may be, unless it be properly applied, i. e., at the proper place, and continuously, and regularly, the result will be unsatisfactory.

Obviously the first element common to the two heads under which I propose to deal with the subject in hand is friction, for I take it that the object of lubrication is, in brief, the reduction of friction and the preservation of machinery; and, in order to determine how these two ends may be attained, we must consider:

1. The nature of friction itself.
2. The principle upon which it may be reduced or overcome.
3. The character and properties of the various lubricating materials at our disposal.

There are many kinds of friction, or perhaps it were more correct to say that friction may be recognized under many conditions. Thus we have, in the first place, two grand divisions:

1. The friction of quiescence or rest.
2. The friction of motion.

The former being, as you are well aware, much greater than the latter.

Under the second head we recognize:

1. Rolling friction—i. e., the resistance offered by the circumference of the wheels of a vehicle to the propelling power.

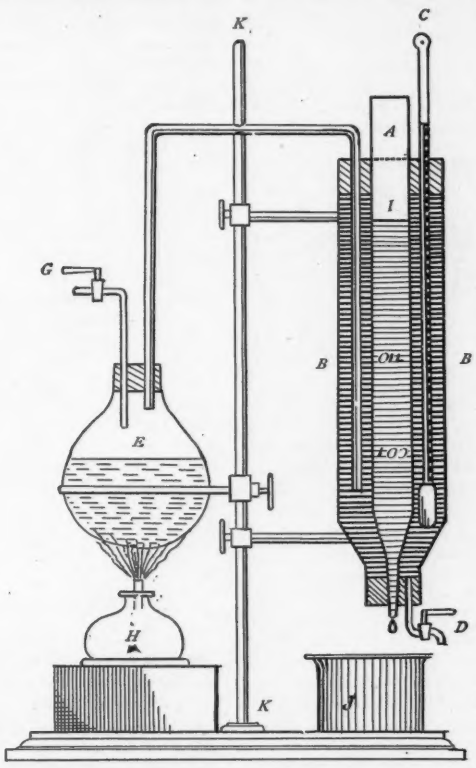
2. Sliding friction—i.e., the friction of two flat surfaces, as in a planing machine.

3. Revolving friction—i. e., the friction of journals and bearings of every description.

It is with the latter that we have more immediately to deal, and I think that, instead of occupying your time vainly in propounding or discussing theories of friction, I shall do better to lay before you, as practical men, a brief account of a series of experiments which I carried out some time ago, and the results which I obtained, not so much to ascertain the properties of friction as to discover how it may best be overcome.

The series of experiments to which more particularly I refer, were undertaken to determine whether thick or thin oils—pure or compound oils—give the best results in reducing friction and heat on machinery. The instrument which I used, and which I dare say is familiar to many of you, was the "Stapfer Oil Tester," manufactured by Messrs. W. H. Bailey & Co., of Salford, the best, I believe, before the public at that time, though it has since been superseded by Professor Thurston's ingenious instrument (manufactured by the same firm), which seems perfect in its principle, and capable of modifications which will adapt it to test oil for any class of machinery.

The oils I tested were those named in table 1, opposite which results are found in the column headed "Temperature," and samples of compound oils for heavy and light machinery, some of which I obtained from people using them, some of which I prepared for myself. I also tested a number of samples of pure mineral oils, of British and American origin, and of various gravities and thickness, in order to ascertain how they compared with animal and vegetable oils, or with compounds of these with mineral oil. The method of testing which I adopted was not that recommended by the maker of the instrument, which is, with one or two drops of oil to run the machine until a temperature arbitrarily fixed upon—usually 200°—be attained, which involves, in some cases, that you should run the instrument dry; but as my object was to ascertain the effect of different oils, as nearly as possible under conditions of actual working, upon a properly lubricated bearing, I preferred to use a more liberal supply of oil—ten or twelve drops—and to run the machine for a fixed time (one hour and a half), noting the time taken to get up full speed, and the temperature attained and maintained during each experiment, and, in the case of some oils, the point at which they began to smoke, and the condition of the brasses after each trial. Each oil was tested three times—once before breakfast, once in the forenoon, and once in the afternoon—and the instrument was allowed to cool, and was thoroughly cleaned between each test.



OIL-TESTING APPARATUS AS SKETCHED BY THE AUTHOR.

A—Glass tube about 1 inch in diameter, graduated from 1 to 100, to contain about 100 cubic centimeters of oil.
B B—Glass jacket, about 3 inches in diameter, filled with water as shown.
C—Thermometer, indicating temperature of water in jacket.
D—Small brass cock, for withdrawing water from jacket.
E—Glass flask, for generating steam to heat water in jacket.
F—Glass pipe, connecting the steam flask E, with jacket B, delivering at bottom of jacket.
G—Small cock, for permitting escape of steam in order to regulate quantity sent into jacket.
H—Spirit lamp on stand.
J—Glass beaker, to contain oil.
K K—Cast iron stand, with adjustable arms, for carrying apparatus.

Table 1, showing relation between bodies of oils at various temperatures and heat (representing friction) developed under similar conditions on the "Stapfer Oil Tester."

Name of Material.	S.G at 60° F.	Body at 60° F.	Body at 120°F.	Body at 180°F.	Temperature.
Water	1000	....	....	....	....
Castor Oil	960	....	132	41	158
Resin Oil	990	....	....	....	155
Engine Tallow	....	Solid	41	26	....
Tallow or An'l Oil.	....	143	37	25	141
Neatsfoot Oil	....	112	40	29	....
Rape Oil	916	108	41	30	148
Lard Oil	916	96	38	28	146
Olive Oil	915	92	37	28	143
Sperm Oil	880	47	30	25	133
Mineral Oil	905	(?) 45	....	....	121
Mineral Oil	875	(?) 30	....	....	117

The figures in last column, headed "Temperature," represent the average maximum temperature maintained during three tests of an hour and a half each, of each oil examined, save in the case of the mineral oils, the trials of which had to be stopped in from 30 to 60 minutes, as the oil became by that time exhausted, and there was danger of spoiling the tester.

In the above table, to which I call your attention, I exhibit the results which I obtained with a few well known oils. I have not thought it necessary to encumber it with the results given by special or compound oils of uncertain and perhaps variable composition; but I may say that, as far as I examined them, these entirely corroborated the results now before you, and confirmed the deduction which I am about to submit to you from these figures. With regard to the value of these figures now in your hands, I should like to say that I approached the question with an utterly unbiased mind, prepared to accept whatever results my experiments should show; and that though, from the natural and unavoidable variation which is to be met with in oils of the same class, arising from difference in the material from which they are produced, the season of the year in which they are made, and the process by which they are refined, I should not undertake myself, nor should I expect any one else to obtain precisely the same results from another set of samples of the same oils. I hold that the harmony which is to be observed in the figures denoting the body of the oil and those referring to temperature is sufficient to prove their trustworthiness and the reasonableness of any conclusion to which they point.

In this table you find in the first column the name of the oil, in the second column its specific gravity—of which, however, for reasons which I shall subsequently explain, I take no account in fixing the value of an oil. In the third, fourth and fifth columns you have figures indicating in seconds the relative body of each oil at 60°, 120° and 180° Fahrenheit, obtained by noting the time which a given quantity of oil takes to flow through the narrow contracted orifice of a tube specially designed and arranged for the purpose, as shown in the accompanying drawing; and in the last column you have the average normal temperature maintained upon the bearing when it was running at full speed (a 3-inch shaft making about 1,500 revolutions per minute) and properly lubricated with the oil under trial.

I wish it to be distinctly understood that the figures representing temperature are not to be taken as indicating a maximum temperature, or as the temperature indicated at any particular time in the course of the experiment, but as the average temperature developed and maintained with slight variations in three separate trials, and for upwards of an hour in each case. These readings of the thermometer I regard as the normal working temperature of the oil, and as a measure of its power of reducing friction.

Now, if you examine the table, you will find that there is a uniform coincidence between the body or thickness of the oil, as shown in columns 3, 4 and 5, and the temperature developed by each, as shown in column 6. The only apparent discrepancy occurs in the case of tallow oil, which, though much thicker than rape, lard or olive oil, at 60° Fahrenheit develops a lower temperature than these; but if attention be directed to the respective bodies of these oils at 120°, and more particularly at 180°, it will be found that the anomaly disappears, and the irregularity may be explained by the fact as tallow oil frequently contains a good deal of stearine, a higher temperature may be required to thoroughly liquefy it than is required by the other oils.

As it thus appears that the temperature developed by each oil is in proportion or relation to its body, in the sense that the thicker the oil the higher the temperature; and as temperature is an equivalent of friction, and an indication of the power necessary to overcome it, I think we may safely infer that the best and most suitable oil for any bearing is the thinnest which will keep the surfaces apart, and that extra thickness means a higher temperature and greater driving power, although, on the other hand, it must be borne in mind that if the oil be too thin an extra quantity will be required.

I may add that in the course of these experiments I obtained a curious and altogether unexpected confirmation of my theory that thick oil requires a greater driving power than thin oil. The belt driving my apparatus was slack and slipped when it met with any extra resistance; and I observed that when I started to test any but the thinnest oils, such as sperm, or oils of similar body, there was an amount of slip and delay in attaining full speed quite in accordance with the thickness of the oil and the temperature which it subsequently developed.

Having thus given you the results of my attempt to discover the effect of body or thickness of oil in reducing friction, it may interest you to know the results which I obtained as between animal and vegetable oils, and compounds of these with mineral oils, and minerals pure and simple. It appeared to me that if body alone were to determine the lubricating properties of an oil, mineral oils, provided they could be obtained of sufficient body, ought to do the work of the dearer animal and vegetable oils. To settle the question, I proceeded to test mineral oils of various classes and thicknesses, including natural American oils and British and American refined oils. At first it appeared that I should get an answer in the affirmative, but I soon discovered that, though in the first instance, and for a short time, I obtained results as to temperature and drag, or slip, which their body led me to expect, they were so soon exhausted that I was in danger of destroying my tester, and I had to stop my experiments, in some cases before they had run for half an hour. In nearly every case among my notes of experiments with mineral oil, I find such remarks as "journal smoking," "journal whistling," and in some cases, after finishing, "brasses discolored," "traces of firing," etc. From which I became convinced, and am still of the opinion, that besides being unsatisfactory lubricants, so much more would be required in actual working to keep machinery in order as wholly to neutralize their apparent cheapness; and I should not recommend their use without the addition of animal or vegetable oil, except in cases where for other reasons this is not advisable. Probably efficient lubrication may be obtained by the use of pure mineral oils of very great body, and I know instances where

this is the case, but for light or ordinary machinery the extra drag which such a body would entail renders these oils unsuitable, although from the reducing power of heat this does not detract from their value as lubricants for steam and other cylinders.

Indian vs. European, American, and Colonial Wheats.

A leading Glasgow paper says: A very important and interesting document has just issued from the India office. There has been a good deal of discussion of late as to the merits of Indian wheat as compared with American and other wheats, and as to its suitability for the home market; and the secretary of state for India, with a view to the elucidation of the subject, has caused Messrs. M'Dougall Bros., the well known millers and bakers, Mark Lane, to carry out certain defined experiments. The results are now made known. It is explained that the instructions to Messrs. M'Dougall Bros. were: 1. To take a given quantity of four representative Indian wheats, viz., Indian fine soft white, superior soft red, average hard white, average hard red, and manufacture them into flour by the ordinary process of grinding under millstones. Also to take similar quantities of the same wheats and manufacture them into flour by means of crushing between rollers, according to the system known as the Hungarian or roller system: 2. To take a given quantity of each flour so produced and manufacture it into bread. 3. To note the qualities and other characteristics of the flours produced, also, of the offals, viz., middlings, pollard, and bran. 4. To procure the following representative wheats, of fair average quality of the season, as then being sold on Mark Lane market, and, for the purpose of obtaining results for comparison, deal with them precisely as above indicated, both as regards flour, bread, and offals, viz.:—English average, American red winter, American spring, Australian average, Californian average, Russian Saxonska, Russian Taganrog, Egyptian Buhi, Egyptian Saida. These operations, Messrs. M,Dougall report, have all been carried out in their own mills and bakeries with due care and precision, and under the personal supervision of one of the members of the firm during the whole period occupied until their completion. The quantity of each wheat operated upon by each system of milling was 5,000 lbs., as delivered from the ship (weight of sacks or bags not included). The results obtained are stated in a series of tables, of which the following is a synopsis. There are two statements of results given, it will be observed, to each sample. The first line applies to the grinding under millstones, the second to the crushing between rollers:

Wheat.	Value per 496 lbs. net weight on day of valuation.	Weight per bushel.	Impurities removed.	Yield. Flour.	Middlings.	Pollard.	Bran.
	s. d.	lbs.	per cent	per cent	per cent	per cent	per cent.
Indian (fine soft white)	49 0	64	1.52	77.46	.82	8.8	12.0
Indian (fine soft white)	49 0	64	1.52	74.10	11.0	8.7	4.0
Indian (superior soft red)	45 0	62¾	.72	78.40	1.68	9.8	9.4
Indian (superior soft red)	45 0	62¾	.72	75.4	7.7	13 5	5.3
Indian (average hard white)	44 0	60	3.7	80.52	.78	10.0	8.3
Indian (average hard white)	44 0	60	3.7	73.2	10.3	14.3	3.1
Indian (average hard red)	43 0	61¼	1.2	79.88	.79	13.20	8.50
Indian (average hard red)	43 0	61¼	1.2	74.2	10.3	13.8	3.0
English	49 0	60½	1.5	65.2	1.1	9.7	17.7
English	49 0	60½	1.5	70.3	7.6	7.2	9.2
Australian	50 6	62½	1.0	75.8	1.1	7.4	14.4
Australian	50 6	62½	1.0	75.1	8.0	9.3	0.5
New Zealand	46 0	62¾	.3	76.1	.96	8.8	11.5
New Zealand	48 0	62¾	.3	76.1	7.8	6.6	5.6
California	48 0	59¾	1.7	71 1	.72	9.2	15.3
California	48 0	59¾	1.7	70.1	14.5	6.3	3.9
American (winter)	49 6	61¾	.5	73.8	.38	7.9	16.4
American (winter)	49 6	61¾	.5	71.5	10 3	11.2	3.1
American (spring)	48 0	61	.9	72.2	.24	7.2	14.7
American (spring)	48 0	61	.9	69.5	12.1	10.4	3.8
Russian (Saxonska)	52 0	60½	.9	73.0	1.2	11.6	12.6
Russian (Saxonska)	52 0	60½	.9	71.4	12.5	11.7	3.3
Russian (hard Taganrog)	49 0	61¼	.8	76.2	1.2	12.7	8.1
Russian (hard Taganrog)	49 0	61¼	.8	72.0	9.6	12.1	5.0
Egyptian (Buhi)	47 0	58	2.7	72.9	1.0	11.0	10.0
Egyptian (Buhi)	47 0	58	2.7	72.6	10.4	8.5	3.5
Egyptian(Saida)	43 6	57½	12.1	66.9	.76	11.4	7.5
Egyptian(Saida)	43 6	57½	12.1	67.8	7.2	6.5	4.9

When the manufacture of the wheats into flour was completed, Messrs. M,Dougall proceeded to convert into bread a given quantity of each flour from the Indian wheats by both systems of milling, and from the remaining wheats by the roller system, and the results obtained are stated in the following table. In the case of the Indian wheats the second line of results refers to the flour crushed by rollers:

Wheat.	Quantity Flour.	Yield of Bread when cold.	Percentage of Bread to Flour.	Percentage of Water to Flour.	Remarks.
	Lbs.	Lbs.			
Indian (fine soft white)	280	364.0	130.0	50.5	Loaf small and rather dense.
" " (superior soft white)	280	367.5	131.2	53.4	Ditto.
" " (average hard white)	280	372.0	133.0	50.6	Ditto.
" " (average hard red)	280	362.0	129 3	52.3	Ditto.
" "	280	370.5	132.4	50.8	Ditto; texture more elastic.
English	280	365.0	130.3	53.4	Ditto, ditto.
Australian	280	376.6	134.5	51.8	Ditto; too ricey.
New Zealand	280	365.0	130.3	52.2	Ditto, ditto.
California	280	352.0	125.7	46.4	Loaf medium. Flavor very good. Fine silky texture.
American (winter)	280	355.4	126.9	48.0	Loaf medium size. Texture good; silky. Dough of putty nature.
American (spring)	280	349.0	124.6	47.1	Loaf medium size. Texture little weak.
Russian (Saxonska)	280	364.0	130.0	48.9	Loaf medium in size. Texture a little weak. Crust too pale.
" (hard Taganrog)	280	346.0	123.5	46.4	Loaf medium in size. Texture good.
Egyptian (Buhi)	280	354.0	126.4	46.4	Loaf lofty. Elastic texture. Handles kindly.
Egyptian (Saida)	280	356.0	127.1	46.4	Loaf very lofty. Very elastic texture; so strong operatives complained required too much strength in handling it.
	280	354.5	126.6	51.9	Loaf lofty. Fine bloom. Texture good. Red crust.
	280	362.0	129.3	48.9	Loaf possessed no good points.
	280	358.0	127.7	51.6	Ditto; a degree lower than above.

Remarking on these results, with special reference to the Indian sorts, Messrs. M'Dougall say that to any one experienced in the requirements of the wheat and flour markets of the United Kingdom, and indeed of most other countries, it will be evident there is no probability of these Indian wheats coming into demand for manufacture into flour without a liberal admixture of other wheats. They all possess, they add, in a marked degree the same characteristics of great dryness, and a distinct beany and almost aromatic flavor, inseparable from wheats grown in the climates and soils of the tropics. Also the flours are ricey, the texture of the bread is too close, and the crust is hard and brittle. But these characteristics do not detract from their usefulness in any important degree. As is well known, it is said a miller cannot show skill in his craft to greater advantage or profit than that with which he selects his wheats and mixes his grists, so as to produce to best advantage a flour from which bread can be made of the color, bloom, strength and flavor desired, and withal a good yield. We pronounce them to be exceedingly useful wheats, in fact hardly equaled for what is deficient and wanting in the English markets by any other wheats. Their chief characteristics are just those in which the wheats grown in our variable climate are most deficient. Their great dryness and soundness render them invaluable for admixture with English wheats that are in any degree out of condition through moisture, and the great proportions of the wheats harvested here have been in that condition for some years past—a condition that must prevail in all other than that of wheats harvested and stored during fine and favorable weather; and this the English farmer knows, greatly to his cost, is a state of climate that is by a long way the exception rather than the rule. Added to their dryness, the thinness of the skins of these wheats and consequent greatness of the yield of flour, must always place them in the front rank as a "miller's" wheat, whenever they are handled with reasonable intelligence and skill. Such unprecedented yields of flour, as shown by these wheats, ranging (by ordinary grinding) from 77.46 to 80.53 per cent, against English 65.2 and American spring 72.2, speak volumes in their favor, and their value is still further increased by another point of merit of almost equal importance, viz., a larger percentage of bread may be obtained than from any other of the flours included in this review. That, for the best of these Indian wheats (the fine soft white), on the day they were valued on Mark Lane market, a price was offered as high as that for American winters, New Zealand or English, proves that the great value of the Indian wheats is becoming recognized here, a knowledge that will ere long extend to all our markets. The other lots of Indian (Nos. 2, 3, and 4) were lower in value to the extent of 4s. to 5s. per quarter as might almost have been expected from the difference in color and other characteristics; still, as these latter wheats become better known here this difference in price will be somewhat lessened. Their beany flavor is not a serious obstacle, as fair average deliveries, when well cleaned and properly dealt with, can be employed in the proportion of 25 per cent to 50 per cent along with home-grown and other wheats, such as Americans possessing a fine sweet, milky, or nutty flavor. Glancing at all the facts here elaborated, it is evident that these wheats afford a larger margin of profit both to the miller and baker than any other. We venture to record a conviction we have long held, strongly emphasized by the results of these experimental workings, of the measureless importance of the great resources of the Indian empire being developed to the utmost in producing wheat for this country. Farmers here are finding that to live they must produce beef and mutton rather than grain, hence the greater need of resources of supply under our own control. The character and general excellence of the Indian wheats are improving with the deliveries of each successive season. The Indian wheats now specially under review were delivered to us in excellent condition, with freedom from dirt, barley, gram and other impurities, also with a freedom from weevil rarely equaled by Indian wheats, except the prime parcels of the past season, and there is no doubt an outlet in this country and the European continent for unlimited quantities at prices that shall prove remunerative to all parties concerned, either in their growth, transportation, or conversion into flour and bread.

MILLING AT MILWAUKEE.

[SPECIAL CORRESPONDENCE.]

More mills have been running the past week than for some time since, which would indicate that a change in the state of affairs had occurred, and although the demand at present is entirely in the prospective, we believe with a decline of a few more cents per bushel in wheat, buyers will be more disposed to purchase. The decline in wheat is what has started more of our mills. But wheat is still too high for shippers to take hold and reduce the stock, and until it meets their wants, we can look for no decided revival of trade. Another bad influence brought to bear on the present dullness is the persistent efforts of country millers to run their mills, and keep the present large stocks from diminishing. This is all wrong, and we think if they would but go to the large flour markets and see the condition of affairs, they would save considerable money in the end, for flour consigned on top of the present large stock will net them a loss every time. We would suggest that a general combination of millers be formed and decide to shut down their mills universally for thirty to sixty days, when the present large stocks will be disposed of and buyers will again be in the market. Unless something of this kind is done, this surplus will continue on the market and depress business continually, and millers will not see the usual fall harvest that they have heretofore. There is certainly an overproduction of flour, caused by millers in changing to the roller system, invariably doubling their capacity, and many large new mills being built, as capital could not be invested better at that time. It has, however, got to a point now when a fair interest on the investment can not be realized, and until the consumptive demand increases, there must be less flour manufactured. We are pleased to note that few new mills are contemplated now, and few will be built until matters right themselves. In the meantime, is it not better to combine and shut down the mills until a demand springs up, and flour can be made at a profit, than to have the present state of affairs continue?

The following shows the daily production for the week:

Operated by	Mill.	Bbls.
J. B. A. Kern & Son	Eagle	500
L. R. Hurd, (Manager)	Daisy	300
F. H. Magdeburg & Co.	Gem	200
Schlessinger & Daggett	Northwestern	500
Stern & Wohlrab	Jupiter	200
*E. Sanderson & Co.	Phœnix	1,000
S. H. Seamans & Co.	Empire	175
C. Manegold & Co.	Reliance	500
Total daily production		3,375

*Sanderson's mill started Thursday.

Home trade inquiry remains quiet at the following quotations: Patents at $7.25; bakers', $5.75. Feed is in moderate request at $10.50 for bulk and $12.50 for sacked bran. Bulk middlings at $12.50 and sacked at $14.50.

* * *

John McCann, of Nashville, Tenn., is spending a few days here.

Frank Kidder, of Terre Haute, Ind., was in the city the past week.

W. D. Gray will be in Minneapolis next week. He says, "for pleasure only."

The Riverton Mill Co., of Riverton, Va., have ordered rolls and machinery of E. P. Allis & Co.

E. P. Allis & Co. are sending a 32x60 high pressure Reynolds-Corliss engine to the Southern exposition at Louisville.

Henry Lenier, of Nashville, Tenn., is spending the summer at Lakeside. He is of the firm of the Lenier Milling Co.

J. Hayes, of J. & J. Hayes, Goulburn, new South Wales, has ordered an 18x36 Reynolds engine and a Gray roller mill from E. P. Allis & Co.

By the breaking of the Northwestern Marine elevator No. 2, the owners lose $13,000, with no insurance, the insurance only covering loss by fire. The building was valued at $8,000, and the balance is made up by the 2,000 bus. of wheat, which went in the river, and damage by rain to part of the remaining stock, and the work of restoring the balance.

This morning's paper states that McGeoch had sold out his lard yesterday at a loss of $1,500,000, and authentic reports received today indicate that such is the case. It is said that the loss is divided equally between McGeoch and Daniel Wells. Evidently this article of produce was being delivered faster than the combination wanted, and they thought better to sell out than to carry the vast quantities through July. Although this is a severe loss for the owners of this property, it is much better for the community at large, and many millions will be saved the consumers. It will also tend to burst up corners, which will leave the country in a much better condition, as corners of all kinds are a ruination to legitimate business.

The following summary shows the receipts and shipments of flour for the week, compared with the corresponding week last year:

	Bbls.
Receipts of flour for week ending Sat. June 16	64,797
Corresponding week last year	59,696
Since Jan. 1, 1883	1,428,681
Corresponding time last year	1,422,725
Shipments of flour for week ending June 16.	69,064
Corresponding week last year	85,591
Since Jan. 1, 1883	1,684,675
Corresponding time last year	1,824,354
	Bus.
Receipts of wheat for week ending June 16	244,331
Corresponding week last year	130,517
Since Jan. 1, 1883	3,522,387
Corresponding time last year	3,199,886
Shipments of wheat for week ending June 16	68,675
Corresponding week last year	10,550
Since Jan. 1, 1883	495,487
Corresponding time last year	626,493
Wheat in store June 16, 1883	1,912,000
Corresponding time 1882	782,000
Corresponding time 1881	2,215,000

"BRIGHTON."

Milwaukee, June 16.

The Winnipeg *Commercial* of June 5, says: "Our local grain market for the past week has been dull and lifeless, there being no movement anywhere, and the receipts only about thirty-five cars from western storage points. There is still a good stock of wheat at the mills, and as these are only running to supply the local demand the stock does not diminish rapidly. Grain dealers are rather disappointed at the limited demand, and are in no way inclined to make purchases at any reasonable price."

Continued from page 584.

wright who did the work for him, as the mill did not grind "worth a cent." What was the matter with it? Why! "she" would persist in throwing out pieces of corn and oftentimes whole grains, and that was not all the trouble. "She" would burn out all the "packing" around the neck of the spindle if it was run over an hour at a time. Did his miller not know what was the matter? He did not employ any, that is right along. When one come along and wanted a job he had "her" taken up and fixed up and then "she" would go for some months. The last man he had was a bang up miller, a real worker, and he made him put the "grooves" in real good and deep, as in his estimation it was all nonsense to be all the time "titraviting" the grooves.

He wound up by saying that it would be worth four hundred dollars to him to have some one strengthen her up so that she would do good work, as he was losing custom every day.

I assured him that it ought not to cost him so much as that; that it probably was some little simple matter that could be easily remedied.

Taking our owner aside I explained the matter to him, and inquired if he desired me to assist Mr. ———. "Yes," said he, "if we can do him a kindness should like to do so."

Thinking this was a good chance to enjoy a good ride into the country, on a beautiful day, I said to Mr. ——— that if agreeable I would go out with him and look at "her," and perhaps I might be able to tell him what was the matter.

Mr. ——— was delighted, and so expressed himself, and it was not many minutes before we were sailing along a delightful road at a good gait, and I was fully satisfied that Mr. ——— was a great deal better judge of a horse than a mill. I can hardly express to you, Mr. Editor, how much I enjoyed that ride. All nature seemed to be in one of her happiest and most joyful moods. The green fields, the sun shining through the beautiful trees, all tended to create a picture that will be long remembered by me. I could not help thinking that nature had been very good to us all, at least to those of us who were not compelled to work in a dusty flour mill all their lives for a living—where every ray of sun reveals myriads of infernal machines contained in the dust-laden atmosphere—according to Prof. Tobin—ready to send the poor dusty heavenward at the most favorable opportunity.

Mr. ——— was a farmer who had bought the place he was occupying some little time ago, and at the present writing was miller, storekeeper and farmer, and seemed to be master of the situation, all but the mill, and during the ride out, speaking of the trouble he had had with "her," he remarked that he would give two hundred dollars to anyone that would fix her up.

We drove up to the mill, and I was introduced to the boys, his sons, as the miller from the big mill in town who was going to try if he could tell what ailed her. After asking the boys to take the stone up and sweep the meal off the face of stones, Mr. ——— invited me over to his house to try his cider. I again fell to admiring; I admired Mr. ———'s cider, his wife, but more especially his daughter. I am afraid I looked at her a great deal more than would be considered proper by my better half. One of the boys came over to the house to say that "she" was up, and Mr. ——— led the way to the mill at a rattling good pace, every step meaning business. Walking up to the stone he thumped his fist down with great vehemence and said: "There she is, and I will give any man $10 who will tell me what ails her."

We took very little time to see the reason why the stone discharged whole corn. The stone had been furrowed so deep that when the face wore down, the plane of the furrows was such that it was a very difficult matter for the corn to work up on the face. Some of the corn was forced along the furrows by the shearing action of the stone and finally escaped unground. By running the stone I found that it was a little out of standing balance, the extra strain on the spindle had a tendency to shake the keys behind the followers, and in his way tighten the neck instead of loosening it. My experience had been before that stones out of standing balance always run bush loose.

I explained to Mr. ——— the reason why his stone acted so, also what I thought was the reason the spindle neck worked so hot, gave him a lecture on the principles of a standing and a running balance, suggested that he should widen the furrows in his stone and drive a wedge down between the keys and the bush, sideways, to keep the keys in place, and ventured the opinion that if he would do so all would be right. Truth compels me to say that a man never had a more attentive audience, but I felt that they were all disappointed because the explanation seemed so simple.

On returning to town Mr. ——— appeared to be rather uneasy, like a man with something on his mind. On leaving Mr. ——— at my house he said, "Well, Mr. Bridgetree, how much is your bill?" I assured him nothing. "Oh yes," said he, "you must take something." I never like to take a man's time without giving him something in return; it would not be right you know. Here, take this," handing me a big, bright, round silver half dollar of our daddies. Need I say I did not take it. I never saw Mr. ——— or his boys for months afterwards, but meeting him on the street one day I inquired how his stone was doing, and if "she" continued to throw whole corn. His answer was no, and he excused himself, as he had very pressing business to attend to at that time, and left.

BRIDGETREE.

MILLING NEWS.

A flouring mill at Lehigh, Neb., was unroofed last week by a cyclone.

L. S. Hogeboom and F. B. Smith, of Three Rivers, Mich., have received a patent on a bran duster.

The mill at Drayton, Dak., owned by J. B. Mahoney and operated by Wallace Bros., was burned Saturday morning. Loss, including stock, $20,000, with no insurance. F. C. Irons was the miller.

J. H. Wolfe, one of the proprietors of the New Paris mill, at Richmond, Ind., received injuries on the 9th inst. by falling down stairs in his mill, from which he died two days afterward. He received the fall while engaged in shutting the doors of the mill on the approach of a storm.

In one case, small-pox is claimed to have been beneficial to the miller, at the expense, however, of his neighboring brother. The mill of G. W. Florida, at Rockford, Minn., has recently been having a run of trade so large that it could hardly be handled. This is due to the locality about five miles west and north of Rockford, where there are two mills, being infected with the small-pox.

The following were the receipts and shipments of flour and grain at and from Chicago last week and corresponding time last year:

Articles.	Receipts.		Shipments.	
	1883.	1882.	1883.	1882.
Flour, bbls.....	61,460	52,060	53,523	42,762
Wheat, bus.....	296,151	143,832	88,023	486,403
Corn, bus.....	1,985,111	1,228,291	2,509,480	1,276,472
Oats, bus.....	1,272,323	522,097	1,003,714	519,017
Rye, bus.....	96,360	24,922	112,776	16,220
Barley, bus.....	63,838	34,605	13,546	16,491

A subscriber in Indiana sends us the following batch of news: "Two roller mills are now running in this (Johnson) county, one on the Odell system and the other on the Allis system. Another roller mill is going up at Edinburg, the Nordyke & Marmon Co. having the contract. John A. Thompson, of Edinburg, expects to change to the roller system this summer. A splendid little roller mill has recently been started at Indianapolis. It is owned by Mr. Eischelman and was built by Richards & Butler. It contains 12 sets of Allis rolls. Milling in this country is very dull, and the Gibson mills at Indianapolis are much of the time shut down. E. Gripp & Son, of Louisville, Ky., are building a 200 barrel Allis roller mill. Richards & Butler are doing the work, and expect to have the mill in readiness to start shortly before harvest time."

The following story of a case of family infelicity comes from Quitman, Ga.: "C. Thorpe and wife bought a water mill in Florida, a few miles below the Georgia line, six months ago. On Wednesday night Mr. Thorpe was at a debating society a short distance off, when he was horrified to see his home ablaze. He gave the alarm, and ran over to remove his family and effects. He found his wife and trunk and money (about $500) gone. Search was made that night and next day for the woman without avail. Thorpe raved so that the neighbors thought he was dissembling, and decided that he had killed her. They let off the millpond and searched the forest, and still she could not be found. They then came to the conclusion that she had burned the house, taken the money, and eloped, whereupon a warrant was issued for her arrest and they scoured the country, and yesterday she was found at a neighbor's house three miles distant. It seems she had been in an adjacent swamp the whole time. It is thought that she eloped with a young man, and that, pressed too closely, she surrendered herself in this way to protect him. She is now in the custody of the law."

Ira McDaniels, Brooklyn, Ind., has placed through his furnisher an order with Willford & Northway for two centrifugal reels.

Strohwig & Rogers, Marion, Kas., have ordered a centrifugal reel from Willford & Northway.

L. P. Hopkins, Lebanon, Ind., placed a hot order with Willford & Northway, through his furnisher, for a No. 3 centrifugal reel. "Ship at once, and follow with a tracer," reminded us of the Irish boy's cablegram to his girl: "Come by cable, Maggie dear; shure ye can't get here a minute too soon."

Edw. P. Allis & Co. recently received an order from Jerre Wood & Son, Savanna, Ill., who are remodeling their mill to the roller system, for 4 pairs of Allis-Gray rolls, a 4-break machine, together with the other machinery necessary for the change.

The Geo. P. Plant Milling Co. have placed the order for the motive power of their new mill with the Pond Engineering Co., St. Louis. It includes a 32x48 Reynolds-Corliss engine with wrought iron frame to be run at 70 revolutions, easily capable of developing 600 horse power. Also a very large Reynolds feed water heater, one economic belt pump for feeding boilers, and a No. 8 Blake pump for fire purposes.

MILLERS IN WANT

Of a Middlings Run, Corn or Feed Stone, should write to **CHAS. KAESTNER & CO.**, *303 Canal Street, Chicago*, for description and price list of their Improved Portable Mill. Four thousand of them have been sold and they are in use in every state and territory and most foreign countries, giving the best satisfaction in all cases. Buy the best. It is always the cheapest. ☞Mention the Northwestern Miller when writing.

MILL WANTED---BONUS.

The village of Montevideo offers a bonus of $4,000 for a flouring mill. A fortune for the right man. For full particulars address, **VILLAGE COUNCIL, Montevideo,** *Chippewa Co., Minn.*

Webster & Comstock Mfg. Co.,

125 & 127 Ontario St., Chicago, Ill.

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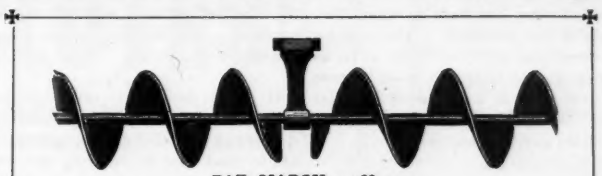

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BOLTS, SCOOP AND POWER GRAIN SHOVELS.

GIANT BRAND OF COTTON BELTING A SPECIALTY. Write for new Illustrated Catalogue.

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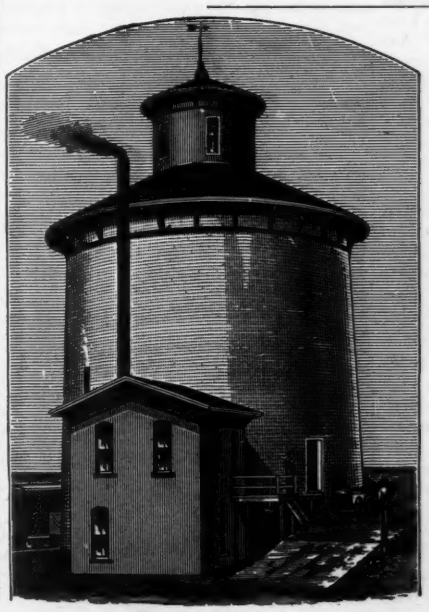

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For all territory west of the Mississippi.

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More than 50 in Successful Operation in the Northwest.

We can refer intending builders to any and all of them.

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The Most Storage for the Least Money

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THE HANDIEST TO OPERATE

ROUGH NOTES.—XXX.

FROM A WORKING MILLER'S POCKET BOOK.

Several years ago, after the introduction of purifiers in the northwest, which led to the development of new process milling, it was said that such a process could not be adopted, as to its principles or details, on winter wheat. The fallacy of such an idea was proved. Next came the northwest, foremost in milling matters, in the introduction of the gradual reduction system. The same cry again was raised—that the rolls would not do on winter wheat. In the meantime the rolls have been introduced, and the gradual reduction system in every form has proved itself to be uniformly superior to the earlier methods. Now I hear rumors that a *complete* roller mill will not do south of the Ohio river. Such a statement would indicate that geography had something to do with this; but I believe the true working out of that question here hinges on the fact of what is a complete roller mill. It is easy enough to say that such a mill is one that uses rolls entire for the work of reduction. The people who raise this question say that a roller mill won't finish up in that locality, but I think the facts will show that it will be simply a question of quantity; that it will take more rolls to finish soft wheat than it does the harder of the north. It takes more roller grinding capacity to do the same work on winter wheat than it does on the hard spring, and it will take more grinding capacity to do finished milling on soft winter wheat than it will on harder winter wheat. I don't think the Ohio river has anything to do with this question.

***

At the present time the relation between reduction and separation is closer and there is less possibility of considering the two subjects separately than ever before. To speak broadly, the process of milling is a process of purification and separation. Everything tends toward such separation; it is the ultimate aim. Reduction machinery in itself is separating machinery. That is, looking at the subject from a single point of view it so appears. It shows that reduction is a detail of the separating scheme. Reduction machinery makes a separation, but not a division. After a reduction there is a conglomerate of pure stock and impurities, but there has been a separation; the impurities are liberated. There is no positive contact, one with the other, as far as the efficiency of that reduction goes, because it is only a reduction in so far as it liberates impurities. Where that work is not done it simply calls for another reduction.

***

The positive separation of one grade of stock from another, flour from middlings, or impurities from either, can go no farther than did the reduction machinery immediately previous to its bolting or purification. Therefore if the positive separations are incomplete it is because the separation by reduction machinery was incomplete. It is because of the impurities being improperly or incompletely liberated. Because of the intimate relation which the reduction and the bolting and the purification methods have one with the other, I can see no way of considering them apart. Any change in one of these methods necessitates a change in the other, unless this change is made to bring about a more complete harmony between them.

***

The more perfect that milling operations become, the more intimate is this relation. There was a time in the history of milling when reduction meant little more than pulverizing, and later it was reduction with incidental separating qualities. At such times the different processes were not so closely allied.

***

However close be the relation of the reduction machinery to separations, the distinction as to the terms reduction and separation must always be maintained in order to give clearness in discussing the general subject. Smooth rolls were formerly spoken of in these notes as purifying machinery, yet it would be confusing to speak of them as purifiers, however much they might aid in that operation. Scientists say that the farther they advance the less reason they find for a great number of the classifications which have been made. It is developed that everything in nature is more closely allied, and that there is more of the same element running through everything than hasty, or unstudied, examinations would develop.

***

In speaking of smooth rolls as purifiers it calls to mind the fact that the whole system of milling is a system of purification. Purification and separation are practically the same thing. The mention of the word purification is a memorandum of what was said in the "Trade Talk" about pure middlings. It was to the effect that there is no such a thing as absolutely pure middlings, and that the word is used in a licensed sense which is somewhat different from its real meaning. We try to purify low grade flour on the reels and by the reduction machinery, but we do not do it. But as far as that goes, we do not absolutely purify middlings. The difference is one of degree and not of fact, altogether milling is a process of purification. Rolls, reels and purifiers are each, in the strict sense, purifiers and separators. All that this means is that there is a very intimate relation between the various processes of milling, or rather between the various details of a milling process. I do not know that it is so with all alike, but in the minds of many of us, the range of difference between the grinding floor and the separations above, is much greater than facts bear out. A reduction machine is a good one in so far as it reduces the stock and liberates the impurities at the same time.

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The subdivision of a subject to be treated does not imply that it is so divided in fact. We make the divisions for the purpose of clearness for our own minds and those of others. It is possible that the one or more details of a subject so treated may assume preponderance over the others, and thus give the mind a distorted understanding of the whole subject. A mill is a mechanical subject, and any treatment of it in practice or in mind which dissolves the relation of one part to another is the thing that destroys the elements of good milling. The success of the gradual reduction system is in proportion as it lessens the breach between pulverization on one hand and separation on the other. It is a success because it takes the grains, opens them out, and detaches the flour and middlings one from the other, either in a separate or separable condition. Its capacity to do this is the measure of its success.

***

If it were desirable to carry the illustration of this view farther, one might enlarge on the idea of the reduction by corrugated rolls and call to mind how in reducing the wheat the whole scheme appeared to be founded on the idea of purification and separation, in that it does the work of separating the flour and middlings from the bran and other impurities, and how the reels make the division. I will try to give the connection of the reduction and separating machinery a more practical turn later.

Foreign Cereal Statistics.

The sales of home-grown wheat, barley, and oats in the 150 principal markets of England and Wales during the first thirty-eight weeks of the season are shown to have been as follows, in quarters, for two years:

	1882-3.	1881-2.
Wheat	1,993,542	1,623,511
Barley	1,937,207	1,625,090
Oats	251,850	206,940

The subjoined table shows the imports in quarters, into the United Kingdom for the same periods:

	1882-3.	1881-2.
Wheat	47,234,474	43,592,550
Barley	13,414,509	10,437,290
Oats	10,610,909	10,510,149
Peas	1,589,714	1,432,372
Beans	1,967,798	1,301,055
Indian corn	14,878,813	15,842,627
Flour	13,015,211	6,883,275
SUPPLIES AVAILABLE FOR CONSUMPTION—38 WEEKS.		
	1882-3.	1881-2.
Imports of wheat	47,234,747	43,592,550
Imports of flour	13,015,211	6,883,275
Sales of home-grown produce	34,554,800	28,141,000
Total	94,804,485	78,616,825
Average price of English wheat for the season, qrs.	41s. 5d.	46s. 6d.
Supply of wheat and flour afloat to United Kingdom, qrs.	2,428,000	2,743,000

It is reported that A. A. Freeman thinks of taking the machinery out of his River Falls mill, to use it in building a mill at Superior City, Wis.

Books Received.

We have received the "Indexed Atlas of the World." This magnficent work is now being offered to the American public through the agents of the publishers. It more properly should be called a geographical encyclopædia. Its equal is not, so far as we know, to be found. We know of nothing in the shape of an atlas that will at all favorably compare with it. Perhaps its most striking feature is its colored diagrams. Statistics, as represented by these diagrams, are an interesting subject instead of a dry one. The diagrams relate to religion, wealth, debt, taxation, growth of population, revenues and expenditures, areas, ethnological divisions of mankind, insurance, and other questions of vital interest. As an instance, turn to the area of the great states of the earth and the mind at once becomes convinced of the value of this method of education and appreciates the value of all the others, of which there are no less than 251. The work is not alone an atlas. To all intents and purposes it is a complete gazetteer and encyclopædia. Its tables and statistics are enormous. In addition to the geographical features of every country on the globe, it examines in detail the history, the industrial wealth, the political, social, religious and commercial condition of each of these countries, and is so exhaustive in its examination of the data from our own states as even to give a careful digest of the civil laws of each. Another remarkable feature is the index page accompanying each map, by which one can easily and at once find any place upon the map, and also ascertain the population of each town according to the last census, and upon what railroad it is situated. Notable among these, for our own country at least, is the fact that within our national limits there are 120,000 towns and villages which have no postoffices, and hence even the mailing lists of the government postoffice department convey no information as to their whereabouts or how to reach them. Here there is a complete catalogue of such places, with the name of the nearest postoffice. This single item of information, if placed in the hands of the public, would save the loss and vexation attending the sending of thousands of letters to the dead letter office. Mechanically it is made up of 922 great folio pages, printed in the highest style of the "art preservative," bound in solid, substantial morocco, richly lettered on back and sides, with full gilt edges, half morocco, gilt edges, antique Russia, or half antique Russia. Time and space would be wanting to speak of a tithe of the single and combined excellencies of this work. It is unquestionably the largest, the most complete, and the most exhaustive work of the kind ever undertaken, and must long stand as a proud monument to American culture and enterprise. Of course a man can live without such a work as the "Indexed Atlas." He can even live without knowing how to read at all. But if he wishes a book at his elbow that will give him more information regarding his own country, or any other, than can be obtained in all the cyclopædias in existence, we can not recommend one that is equal to the one under review. The cost of producing it was nearly $100,000, and the pluck and enterprise of a firm that will spend so much money before realizing a cent, should be appreciated and rewarded. This work can only be obtained by subscription through the agents for the publishers. Mr. Sidgreaves, of this city, is the agent for Minnesota.

***

"Twenty Years with the Indicator," by Thomas Pray, Jr., C. E. M. E., editor of *Cotton, Wool & Iron*, Boston, Mass., is a work filled with practical illustrations of the indicator, and its value to steam users. Whatever Mr. Pray says is well said, and there is hardly a thing in mechanics but appears to better advantage and is easier of comprehension after he has touched it with his pen. Mr. Pray is a man of great versatility and erudition, and there are few branches of science or mechanics with which he is not thoroughly familiar, hence his style is ornate, and his subject is treated in a manner that indicates the broadest experience. All persons interested in the steam engine should procure a copy of this valuable work as it will be of great service to them in their business. It is the result of actual practice for a number of years, and this knowledge is conveyed in such a way in the book before us that the working engineer can easily understand the illustrations and be able to work out his own adjustments. The diagrams are full size, so that they can be measured from and worked accurately by a tracing. Besides being a practical treatise on the indicator, the working is well written, and its forty lessons convey an amount of information rarely to be met with in books written on a purely technical subject.

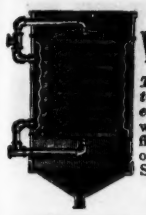
A Card From Stout, Mills & Temple.

We notice an article in the *Commercial Gazette* of May 8, under the heading of "Happy Millers," giving the substance of a conversation by a party of millers at the board of trade meeting, the day previous, in which the decision of the U. S. Supreme Court in the case of Downton, vs. the Yaeger Milling Co. was a topic of discussion. In the course of this conversation, the Livingston and Odell controversy was also alluded to, and it was remarked that Odell had obtained judgment against Livingston, which, were it true, would involve Stout, Mills & Temple, who are the sole manufacturers of the Livingston roller mill. We saw by the tenor of this conversation, that the gentlemen, including the reporter of the *Commercial Gazette*, present at said meeting, did not understand the nature or scope of the Livingston and Odell controversy, and this reply is intended to set both them and all others interested aright on this subject. A false impression has been made in the minds of the millers of the country, all of which has grown out of an interference before the commissioners of patents in regard to the priority of invention, of two minor points, both of which were claimed by both Livingston and Odell. These disputed points have, for several months, been discarded by Stout, Mills & Temple, and different and better ones substituted. It is not our purpose to go into the details of this subject, but only to correct a false impression which has unquestionably been made to prevent, as far as possible, the sale of the Livingston mills. A great deal of coloring has been given to this interference case, and we here say, for the information of all concerned, that no one need have any fears of the Odell party, as we are not using any device on the Livingston roller mills, which is the property or patent of the said party. Further, no judgment has been rendered against us, and none can be. There is not a device in connection with the Odell mill that we want or would use if offered to us as a gift. The manufacture and sale of gradual reduction roller mills is part of our business, and we believe we shall get a fair proportion of business done in this line of mill machinery and can obtain it by fair and legitimate means, instead of frightening millers into purchasing by threats of suits if they purchase any other. We prefer to sell upon the merits of our own production rather than upon the demerits of others. In conclusion, we would say to any and all millowners using the Livingston roller mills, to pay no attention to threats and pay no royalty to any one for the use of the Livingston roller mills. We stand by our friends.

STOUT, MILLS & TEMPLE.

No reflection whatever is cast upon the millers or reporter, as they have been misinformed.

According to the annual corn crop review of R. Lindblom & Co., Chicago, the condition of corn is generally very good. There is a large increase in acreage planted this year, especially in winter wheat states, where thousands of acres of ruined wheat have been plowed up and planted to corn. The damage done by cold weather and rains in May and the latter part of April appears to have amounted in most cases to but little more than delaying of planting and retarding of the growth of the grain. After planting, the warm weather, which set in about June 1, changed the aspect of affairs very much. Warm, bright weather came just in time to do its work and there is promise of a good yield, and with good weather, the promise will not fail of fulfilment. In sections where, because of poor quality of seed or bad condition of soil, corn did not come up, the full acreage has in nearly all cases been replanted.



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WHEAT HEATER!

Thoroughly and properly toughens the bran on the ***hardest*** or ***driest*** wheat; heats the wheat ***evenly*** and improves the flour and milling generally, as no other Heater in the market does. Send for Circular.

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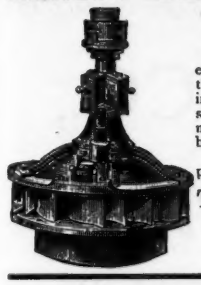

This wheel is acknowledged one of the best on the market. Has valuable improvements in the construction, which are commanding the attention of buyers.

Send for catalogue and price list.

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Chester Co., Pa.

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Millers Safety Lamp

For gas or kerosene. Hundreds are giving the best satisfaction in this and adjoining states.

The only dust-proof mill lamp made and where known no other lamp is in use.

Insurance policies made in their favor.

For reference write to Washburn mills, Pillsbury, or any other Minneapolis mills.

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FIRST PREMIUM
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Shovel-Edge, Curved Heel, Smooth Finish

and freedom from projecting seams, rivet heads, bands, etc., make it run easy, save power, reduce strain or wear and tear of belting, etc.

IT IS STRONG AND DURABLE,

Will outwear three or four hand-made buckets.

It meets the advanced ideas of the times successfully, and is nearer perfection in every respect than any other bucket made.

Leading millwrights recommend it, and the best nformed millers approve and adopt it.

W. J. CLARK & CO., Sole Mfrs.
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Possesses more than double the capacity of other Water Wheels of same diameter, and has produced the best results on record, as shown by the following tests at Holyoke testing flume:

Size Wheel.	Head in feet.	Horse Power	Per cent Usefu Effect.
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	17.96	68.62	.8584
30 "	11.65	52.54	.8676
	11.66	51.96	.8564
15 "	18.34	29.36	.8705
	18.10	29.22	.8808
15 "	18.06	30.17	.8932
	18.08	30.12	.8849
8 "	18.22	48.75	.8532
	11.23	48.75	.8528
	18.21	49.00	.8522
17½"	17.96	36.35	.8950
	18.02	35.51	.8961

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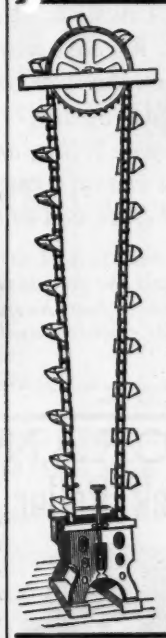

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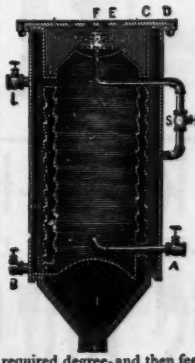

Patented Sept. 27, 1870. Re-issued Aug. 31, 1880. Re-issued May 17, 1881. Patented Feb. 28, 1882.

Millers please examine the 1st and 9th claims and then ask yourselves or attorneys if all other machines used for the *same purpose are not direct infringements.*

FIRST CLAIM.—The Improved Milling *Process* or *processes of preparing grain for grinding and feeding* it to a grinding mill, which consists in passing it by its own gravity *over or in contact with a heated surface,* thus drying and heating it to the required degree, and then feeding it to the *buhrs or rolls while still hot,* substantially as and for the purpose hereinbefore set forth.

NINTH CLAIM.—An apparatus for use as specified, grhich when suspended vertically is adapted to receive wain, and allow passage and discharge of same by its own gravity, and is provided with a chamber or chambers for receiving steam for the purpose of heating the grain as it passes in contact with the heated walls, as set forth. Address

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Gentlemen: I wish to add to the above my testimony, that I never have seen the milling equaled that we are doing here. Your rolls are no trouble to run, and the feed is the nicest thing I ever saw. No roll made can compare feed with yours. I have no trouble watching or adjusting the rolls and in fact the mill runs itself. It takes the least power to run it too, of anything I ever saw. The mill is in all respects one of the best in this country, and no one is beating us in results. Our flour is just way up.

Yours truly J. M. SHERROD, Miller for E. Bracken & Co.

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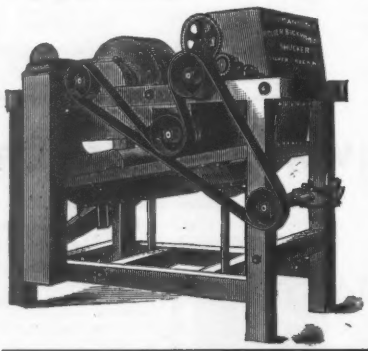

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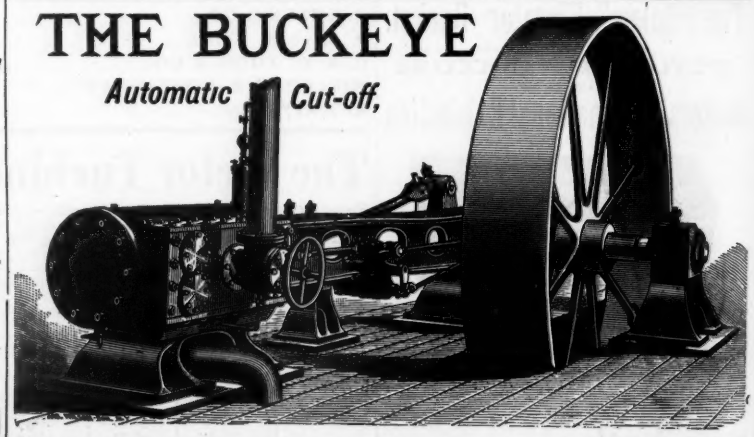

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